

**Volume 1, Number 1****March 1993**

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## ***PARTS.....Approved 3.5-inch IDE Hard Disk Drives for A4000 Systems***

The following AT, IDE hard disk drives are approved by Commodore for use in the A4000 systems:

Part Number	Firmware Rev. Level	Capacity	Max. Avg. Seek Time	Height	Vendor
364290-01	ROM 3.0, RAM 2.03.	40MB	28ms	- - - -	Seagate ST351A
312966-02	- - - - -	80MB	28ms	1.0" (25.4mm)	WD WDAC280
312966-03	- - - - -	80MB	28ms	1.0" (25.4mm)	Seagate ST3096A
311840-02	ROM 146, RAM 184	100MB	17ms	1.0" (25.4mm)	Seagate ST3120A
364517-01	2.55	120MB	17ms	1.0" (25.4mm)	WD WDAC2120
364517-03	ROM 146, RAM 184	120MB	17ms	1.0" (25.4mm)	Seagate ST3144A
311639-04	- - - - -	200MB	17ms	1.0" (25.4mm)	WD WDAC2200
364782-02	ROM 44, RAM 9300	240MB	17ms	- - - -	Seagate ST3283A

WD = Western Digital

Please note that the Seagate ST351A (P/N 364290-01) is an AT/XT hard disk drive. When using this drive as a slave, its light will stay on at all times.

## ***PARTS.....Approved 2.5-inch IDE Hard Disk Drives for A1200 Systems***

The following AT, IDE hard disk drives are approved by Commodore for use in the A1200 systems:

Part Number	Firmware Rev. Level	Capacity	Max. Avg. Seek Time	Height	Vendor
364594-02	- - - - -	30MB	19ms	0.60" (15.3mm)	WD WDAB130
364654-02	ROM 7.08, RAM 7.17	40MB	19ms	0.75" (19.0mm)	Seagate ST9051A
364654-04	ROM 5.00, RAM 5.02	40MB	19ms	0.49" (12.5mm)	Seagate ST9052A
364652-01	4.11 CC:AE	60MB	19ms	0.75" (19.0mm)	WD WDAH260
364652-03	ROM 2.02, RAM 2.11	60MB	19ms	0.75" (19.0mm)	Seagate ST9077A
364652-04	ROM 3.00, RAM 3.00	60MB	19ms	0.49" (12.5mm)	Seagate ST9080A
364532-03	ROM 7.00, RAM 7.03	80MB	19ms	0.75" (19.0mm)	Seagate ST9096A
364888-01	- - - - -	120MB	19ms	0.75" (19.0mm)	Seagate ST9144A
365210-01	ROM 3.00, RAM 3.00	200MB	19ms	0.75" (19.0mm)	Seagate ST9235A



**PARTS.....Approved Walex Keylock Switch**

The Walex keylock switch is approved by Commodore and should be added to the Approved Vendor List. This switch is a two-position (ON, OFF), rotary-action switch. It is fabricated of zinc alloy and is suitable for double-D mounting with included jam-nut. This device comes with pre-soldered leads of appropriate length and two barrel operator keys.

Part Number	Description	Vendor
364285-01	Two-position (ON, OFF) Keylock Switch	Walex 1710-151-0400

**PARTS.....Approved Thermalloy Heat Sink for the 68040 Microprocessors**

The Thermalloy heat sink is approved by Commodore and should be added to the Approved Vendor List. The heat sink is usable with the 68040 microprocessors mounted in 179-pin PGA sockets, part number 390492-01.

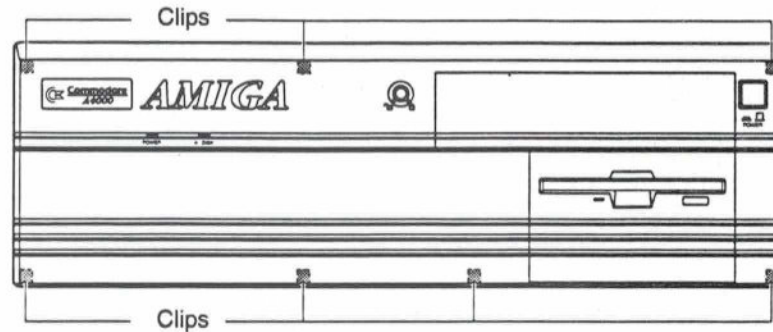
Part Number	Description	Vendor
391493-01	Heat sink used with 68040 microprocessors	Thermalloy-2333B

**AMIGA.....Improper Installation of Power Supply Fan in A4000 Systems**

Several power supply units installed in the A4000 systems have the fan installed backwards. Because of the improper installation, airflow through the power supply is directed inwards to the system instead of outwards from the system.

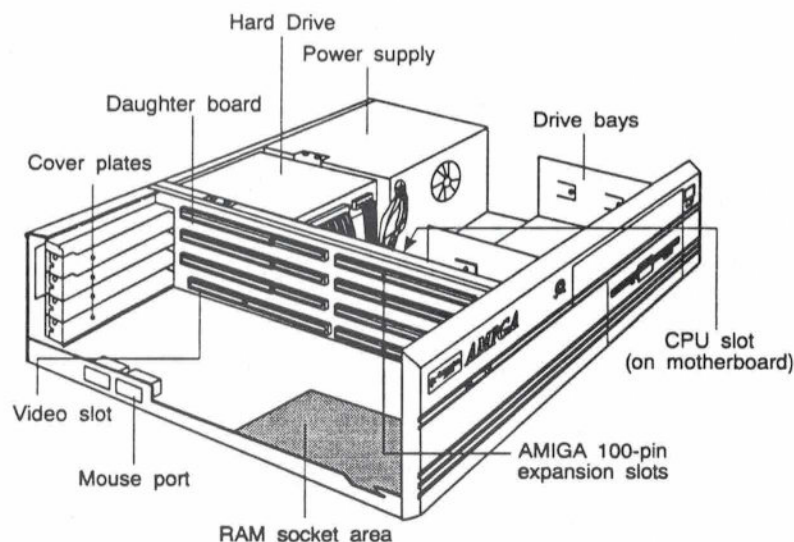
Determine if your system has its fan installed backwards by placing a piece of tissue paper at the back of the power supply and observing the air flow. If the paper is drawn towards the back of the unit, then the fan is installed backwards. To correct this problem, the fan should be reinstalled as follows:

1. Power off the main unit of the A4000 system. Remove the cover, using a Phillips-head screwdriver.
2. Remove the front panel. Use Figure 1 to locate the plastic clips inside the front panel. The location is shown on the outside of the front panel, but the clips are attached to the panel's interior. Use a pair of needle-nosed pliers to squeeze the clips and pry them out of the chassis. Pry the top three clips out first, pry a lower corner clip out next, and then pry the other three clips out.



**Figure 1. Front Panel Clip Locations**

3. Remove the Power-On push rod from the power supply, and the hard disk drive carefully. Figure 2 illustrates the location of most major components in the A4000 systems.



**Figure 2. Location of Major Components in the A4000 Systems**

4. Remove the power connector on the motherboard.
5. Slide the power supply forward towards the back of the floppy disk drive to disengage it from the two clips on the bottom of the chassis. Carefully remove the power supply.
6. Remove the cover from the power supply and the wire grid that shields the fan.
7. Using a diagonal cutter, cut the ty-wrap that secures the wire harness to the fan and carefully remove the fan. If it does not come out easily, remove the three screws on the PCB.
8. Check the airflow directional arrow on the fan housing, and reinstall the fan with the arrow pointing towards the inside of the power supply. You may have to cut the other ty-wrap to enable the fan to be mounted flush against the chassis.



9. Reinstall the wire grid and reinstall the power supply.
10. Replace the screw to the power supply at the back of the chassis.
11. Replace the hard disk drive, making sure that the plastic shield next to the daughterboard is in place, and replace the cover.

### ***AMIGA..... Package Insert for Monitors in A1200 and A4000 Systems***

The A1200 and A4000 systems are built around the AGA (AA) custom chipset. Enhanced graphics features of this chipset and Release 3 software offer many new video modes. Because of the increased number of options, selecting the optimal graphic configuration is more complex. The *AGA Graphics Supplement* (Part Number 371121-01) is available as a guide to assist you in this process.

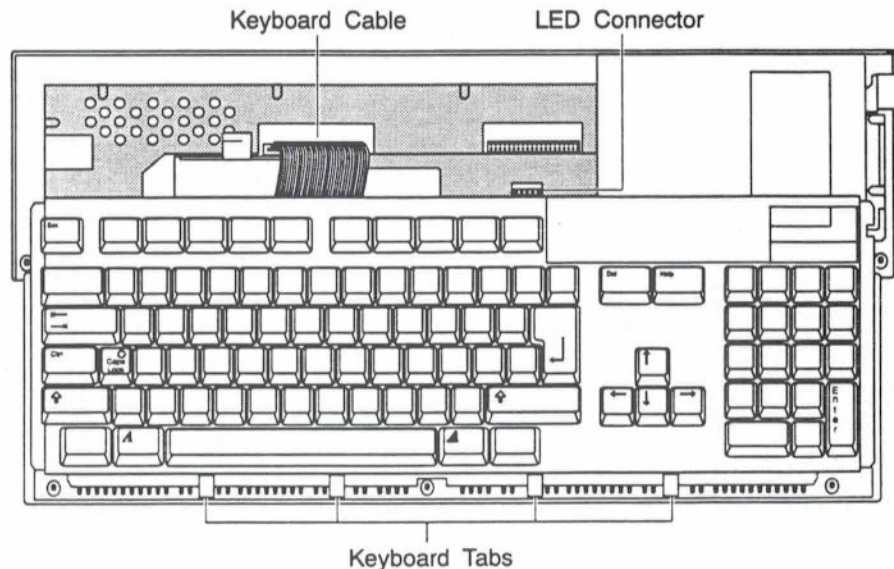
### ***AMIGA..... Untrimmed Leads on Power Connector for A1200 Systems***

Untrimmed leads on the power connector for the A1200 system may cause damage to the RF plastic shield, thus causing a short. Exercise extreme care when inserting the power cable.

### ***AMIGA..... Removal of Capacitor (C460) and Replacement of Capacitor (C461) on the A1200 Motherboard***

The A1200 experiences a color loss (the screen goes gray) when the composite and RF video outputs are used. This problem is apparent on all releases of the A1200 motherboard. However, it occurs almost instantaneously with release 1D of the motherboard. To correct this problem, remove capacitor C460 and replace C461 chip capacitor .22UF (CBM P/N 310027-05) with C461 chip capacitor 1000pF (CBM P/N 390853-07) as follows:

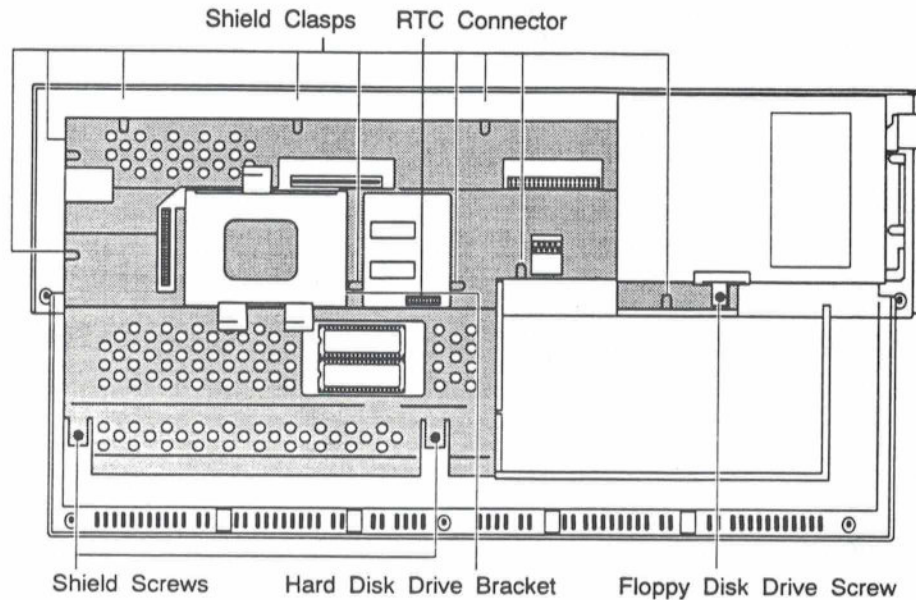
1. Remove the A1200 system top cover screws. Turn the system over and remove the five case screws on the bottom panel.
2. Remove the top panel. Lift the front corners of the top panel. Slide the panel toward the back of the system case. Locate the LED connector illustrated in Figure 3.
3. Slide the LED off the connector carefully before completely removing the top panel.



**Figure 3. Removing the LED Connector and Keyboard**

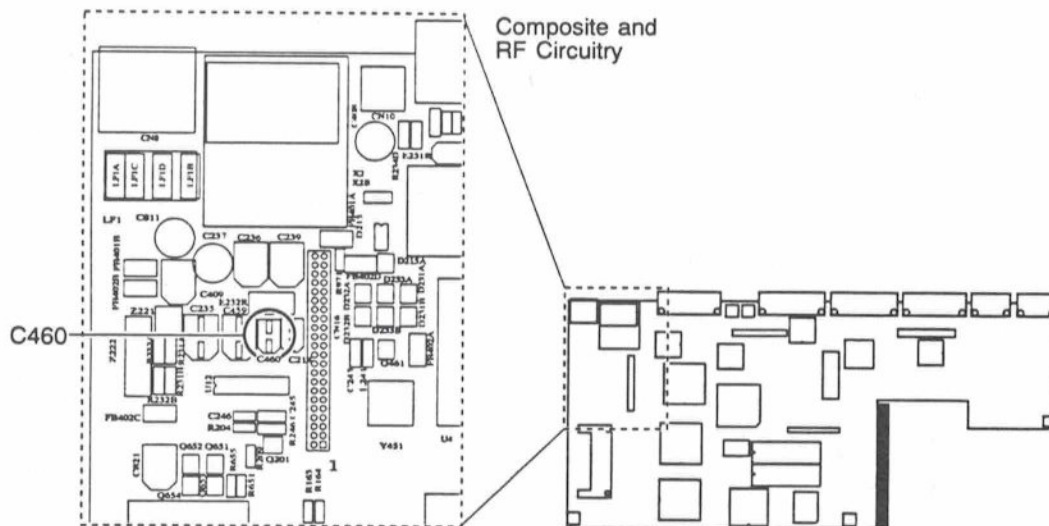
4. Remove the keyboard cable. Locate the keyboard cable illustrated in Figure 3. To release the zero insertion force (ZIF) socket, grasp the top of the socket and carefully lift it up. Use a pair of needle-nosed pliers, if necessary, to hold the top edge of the socket as you lift it up. To avoid cable damage you must release the socket before attempting to remove the cable. Hold the keyboard ribbon cable by its outside edges and slide it out of the socket.
5. Locate the three floppy disk drive screws that attach it to the chassis. Remove the screws and lift the floppy disk drive out of the system. Some systems have a shim between the floppy disk drive and the system case. If you remove it, match the holes in the shim with the screw holes in the system case when you replace it.
6. Remove the hard disk drive bracket. Locate the hard disk drive bracket illustrated in Figure 4. The bracket tabs go into slots on the motherboard. Lift it straight off the motherboard.
7. Remove the shield assembly. Locate the shield screws illustrated in Figure 4 and remove them.
8. Locate the shield clasps illustrated in Figure 4 and bend them to an upright position. The clasps are sharp. Use caution when bending them. Lift the top shield off the bottom shield. Carefully remove the shield.





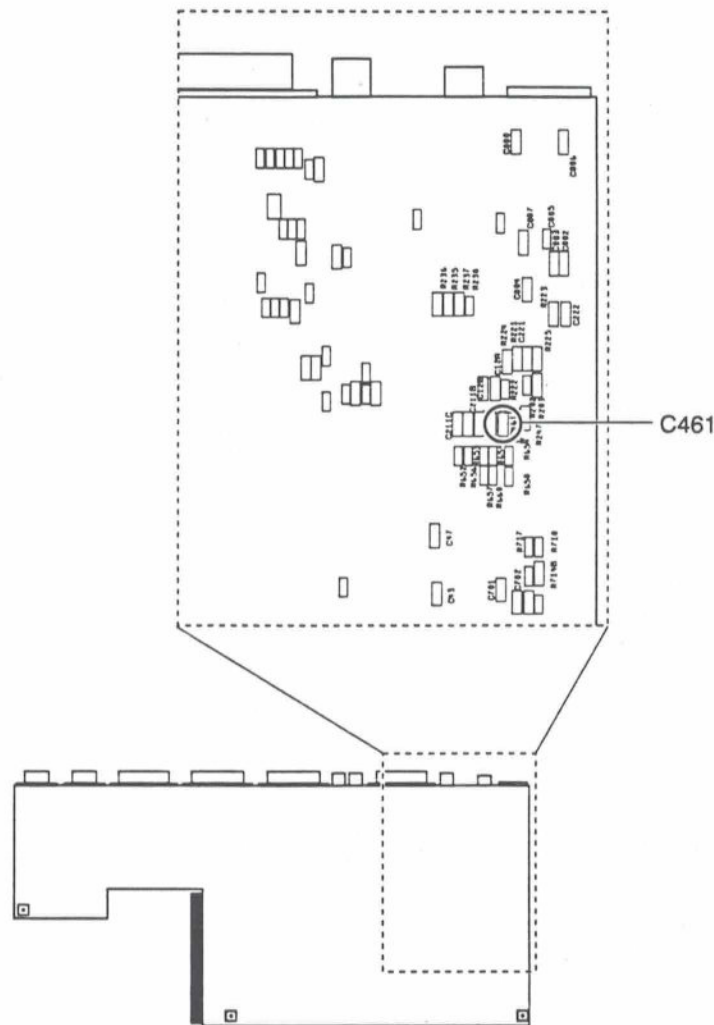
**Figure 4. Removing the Hard Disk Drive, Floppy Disk Drive and Shield**

9. Locate capacitor C460 illustrated in Figure 5. Using a soldering iron, unsolder capacitor C460 and remove it.



**Figure 5. Composite and RF Circuitry**

10. Locate capacitor C461 on the underside of the motherboard (illustrated in Figure 6). Using a soldering iron, unsolder capacitor C461, remove it, and solder C461 chip capacitor 1000pF (CBM P/N 390853-07) in its place.



**Figure 6. Composite and RF Circuitry (Underside)**

11. Put the system back together by reversing steps 1 through 10.

## **AMIGA.....Availability of Patch Disk for A600 Hard Disk Drive**

The Connor CP2024, 2.5-inch, 20MB IDE hard disk drive corrupts data when transferring large amounts of data across certain boundaries. This problem is resolved with *Set Patch*, release version 37.38. *Set Patch* contains all previous patches.



**AMIGA..... Software Release 7.0 for A2091 Systems**

A2091 HDC — New ROM pair Revision 7.0 adds improved performance, compatibility, and support for large drives.

Part Number	Description	Checksum	Location
390722-04	IC ROM Rev 7.0 ODD	083EF2	U12
390721-04	IC ROM Rev 7.0 EVEN	05081C	U13

**Note** This upgrade was only qualified for units which have an "A" type Western Digital SCSI controller WD33C93A, Revisions 04 and 08 (CBM PN 390206-03).

The new Rev. 7.0 A2091 firmware offers a number of improved performance and compatibility features, including 68040 support. Also, there is now support for Sync transfers.

The significant changes are as follows:

- Hard drives with capacities greater than 1 gigabyte are now supported.
- The reselection bug where DMA was not used after a reselection has been fixed.
- Performance, especially during disconnect/reselect, is greatly improved for the common case where there is another task waiting to run.
- Incoming Sync negotiation messages are now interpreted instead of assuming a fixed Sync value. Sync messages are now generated if the option jumper labeled "4" is enabled *and* the drive has the "supports Sync" bit set in its inquiry data.
- The error handling and diskchange handling have been improved. Reallocated write errors are handled properly instead of rewriting the data.
- The software now checks to make sure the message that a driver-initiated Sync message is tacked onto is an Identify. This fixes the Sync problems with Syquest, Seagate ST1480N, Seagate ST1481N, Seagate ST1580N, and Seagate ST1581N drives — and possibly others.
- Some of the "send Sync mode," etc., problems found in earlier revisions have been fixed. This also makes Sync work with more drives (Seagate ST1581N [500MB], for example). Syquests still do not work with Sync (and probably will not until their firmware is fixed) even though the drives' inquiry data says they do.

**Note** Sync should not be enabled if a Syquest is in the system.

- Handling of removable media has been fixed. Earlier versions would check for removable media for only about 30 seconds of removal time (total) and then would stop.
- The A2091/A590 "slow boot" jumper now causes a 15 second wait, then a scan with 300ms timeouts, instead of just scanning with 3000ms timeouts. (Normal SCSI timeouts are 250ms).

**Note** Please see the update to the *Parts/Price Book* for pricing information.

## Spare Parts

U.S. Sales Division

Class	Part Number	Sub. Part Number	Description	Product Used With	ASP	MSRP w/o Core	Core Allow.	Net ASP	MSRP w/Core
IC, Custom	390541-04	390541-07	IC, RAMSEY	A3000T/A3000	96.00	160.00	75.00	21.00	35.00
IC, Custom	390537-02	390537-04	IC, Super DMAC	A3000T/A3000	30.00	50.00		30.00	50.00
IC, ROM	390721-02	390721-04	IC, ROM, Even	A2091	12.00	20.00		12.00	20.00
IC, ROM	390722-02	390722-04	IC, ROM, Odd	A2091	12.00	20.00		12.00	20.00
PCB Assy.	312510-05		PCB Assy., NTSC, Rev. 5	A500	345.00	575.00	185.00	160.00	266.00
Drive Assy., FDD	313248-01		Drive Assy., FDD, HD	A3000T/A3000	64.00	91.00		64.00	91.00
Drive Assy., FDD	313067-05		Drive Assy., FDD, 1.4MB	PC60-III	70.00	99.00		70.00	99.00
Drive Assy., FDD	313067-01		Drive Assy., FDD, 1.4MB	PC40-III/SE286V	70.00	99.00		70.00	99.00
Drive Assy., FDD	312574-01		Drive Assy., FDD, 720K	910	70.00	99.00		70.00	99.00
Drive Assy., FDD	380752-01		Drive Assy., FDD, 880K	A2000	50.00	71.00		50.00	71.00
Drive Assy., FDD	310133-01		Drive Assy., FDD, 880K, Chinon	A3000	50.00	71.00		50.00	71.00
Drive Assy., FDD	312554-01		Drive Assy., FDD, 880K, Chinon	A500	50.00	71.00		50.00	71.00
Drive Assy., FDD	313315-01		Drive Assy., FDD, 880K, Chinon	A3000	50.00	71.00		50.00	71.00
Drive Assy., FDD	327142-01		Drive Assy., FDD, 880K, Panasonic	A500	50.00	71.00		50.00	71.00
Drive Assy., FDD	327156-02		Drive Assy., FDD, 880K, Panasonic	A1000/A1010	50.00	71.00		50.00	71.00
Drive Assy., FDD	359902-01		Drive Assy., FDD, 5.25"	1541-II	57.00	81.00		57.00	81.00
Drive Assy., FDD	380111-07		Drive Assy., FDD, 5.25"	A2000	57.00	81.00		57.00	81.00
Drive Assy., FDD	380825-01		Drive Assy., FDD, 5.25", 1.2MB	A2286	57.00	81.00		57.00	81.00
Drive Assy., FDD	380825-02		Drive Assy., FDD, 5.25", 1.2MB	PC40-III/SE286V	70.00	99.00		70.00	99.00
Drive Assy., FDD	380111-06		Drive Assy., FDD, 5.25", 360K	A2000	52.00	80.00		52.00	80.00
Drive Assy., FDD	327200-01		Drive Assy., FDD, 5.25", 360K	A1020	40.00	60.00		40.00	60.00
Drive Assy., FDD	380111-01		Drive Assy., FDD, 5.25", 360K	PC20/10-III/COLT	50.00	71.00		50.00	71.00
Drive Assy., FDD	325519-02		Drive Assy., FDD, 5.25", ALPS	1541/1540	57.00	81.00		57.00	81.00
Drive Assy., FDD	359901-01		Drive Assy., FDD, 5.25", NEWT	1541-II	57.00	81.00		57.00	81.00
Drive Assy., FDD	252083-02		Drive Assy., FDD, 5.25", NEWT	1571/C128D	70.00	99.00		70.00	99.00
Drive Assy., FDD	251643-03		Drive Assy., FDD, 5.25", NEWT	1541	57.00	81.00		57.00	81.00
Drive Assy., HDD	311836-03		Drive Assy., HDD, 105MB, SCSI	A3000/A3000UX	275.00	425.00		275.00	425.00
Drive Assy., HDD	311836-04		Drive Assy., HDD, 105MB, SCSI	A3000/A3000UX	275.00	425.00		275.00	425.00
Drive Assy., HDD	311838-01		Drive Assy., HDD, 200MB, SCSI	A3000UX	600.00	923.00		600.00	923.00
Drive Assy., HDD	313233-01		Drive Assy., HDD, 20MB	COLT286	154.00	237.00		154.00	237.00



## Spare Parts

Class	Part Number	Sub. Part Number	Description	Product Used With	ASP	MSRP w/o Core	Core Allow.	Net ASP	MSRP w/Core
Drive Assy., HDD	312896-01		Drive Assy., HDD, 20MB	C286LT	154.00	237.00		154.00	237.00
Drive Assy., HDD	312711-03		Drive Assy., HDD, 20MB, WD	A590	185.00	285.00		185.00	285.00
Drive Assy., HDD	313065-03		Drive Assy., HDD, 40MB, Quantum	PC40-III/SE286V	225.00	346.00		225.00	346.00
Drive Assy., HDD	313440-01		Drive Assy., HDD, 40MB, SCSI	A2500/A2000HD/A2091	165.00	254.00		165.00	254.00
Drive Assy., HDD	311833-01		Drive Assy., HDD, 40MB, ST506	A2000	195.00	300.00		195.00	300.00
Drive Assy., HDD	390618-02		Drive Assy., HDD, 40MB, WD	PC20-III/40	225.00	346.00		225.00	346.00
Drive Assy., HDD	311837-01		Drive Assy., HDD, 50MB, Quantum	A3000	180.00	277.00		180.00	277.00
Drive Assy., HDD	311839-01		Drive Assy., HDD, 52MB, Quantum	SL386SX	225.00	346.00		225.00	346.00
Drive Assy., HDD	312966-01		Drive Assy., HDD, 80MB, Quantum	PC60-III	300.00	462.00		300.00	462.00
Drive Assy., HDD	364680-01		Drive Assy., HDD, 120MB, Maxtor	A3000/A3000UX/A2000	275.00	425.00		275.00	425.00
Power Supply	251656-01		Power Supply Assy.	A1020	14.00	21.00		14.00	21.00
Power Supply	380021-02		Power Supply Assy.	PC20/10-III/COLT	54.00	84.00		54.00	84.00
Power Supply	390484-02		Power Supply Assy.	A3000T/PC60-III	125.00	193.00		125.00	193.00
Power Supply	310416-01		Power Supply Assy.	C128	30.00	46.00		30.00	46.00
Power Supply	312639-01		Power Supply Assy.	A590	39.00	60.00		39.00	60.00
Power Supply	390500-02		Power Supply Assy.	A3000	77.00	119.00		77.00	119.00
Power Supply	312637-02		Power Supply Assy., 75W	PC20/10-III/COLT	53.00	82.00		53.00	82.00
Power Supply	1540002-01		Power Supply Assy.	1541/1540/2031LP	11.00	17.00		11.00	17.00
Power Supply	250772-01		Power Supply Assy.	1571	30.00	46.00		30.00	46.00
Power Supply	327173-01		Power Supply Assy.	A1000	40.00	62.00		40.00	62.00
Power Supply	340031-01		Power Supply Assy.	1541-II/1581	21.00	33.00		21.00	33.00
Power Supply	380708-02		Power Supply Assy.	A2000	77.00	119.00		77.00	119.00
Power Supply	252449-01		Power Supply Assy.	C128D	36.00	56.00		36.00	56.00
Power Supply	390269-01		Power Supply Assy.	PC40-III/SE286V	62.00	96.00		62.00	96.00
Power Supply	390205-01		Power Supply Assy.	1764	15.00	23.00		15.00	23.00
Power Supply	312503-01		Power Supply Assy.	A500	28.00	44.00		28.00	44.00
Power Supply	251053-01		Power Supply Assy.	C64	13.00	20.00		13.00	20.00
Keyboard	312702-02		Keyboard Assy.	PC20/10-III	35.00	54.00		35.00	54.00
Keyboard	326166-04		Keyboard Assy.	C64	10.00	16.00		10.00	16.00
Keyboard	250779-01	310401-01	Keyboard Assy.	C128	25.00	39.00		25.00	39.00

# Spare Parts

Commodore Business Machines

U.S. Sales Division

Class	Part Number	Sub. Part Number	Description	Product Used With	ASP	MSRP w/o Core	Core Allow.	Net ASP	MSRP w/Core
Keyboard	310401-01		Keyboard Assy.	C128	25.00	39.00		25.00	39.00
Keyboard	312502-01		Keyboard Assy.	A500	20.00	31.00		20.00	31.00
Keyboard	327063-01	314257-01	Keyboard Assy.	A1000	54.00	84.00		54.00	84.00
Keyboard	380008-02		Keyboard Assy.	PC10-1/PC10-2	54.00	84.00		54.00	84.00
Keyboard	313005-01		Keyboard Assy.	COLT	33.00	50.00		33.00	50.00
Keyboard	250735-02		Keyboard Assy.	C128D	54.00	84.00		54.00	84.00
Keyboard	313323-02		Keyboard Assy.	A3000	39.00	60.00		39.00	60.00
Keyboard	314257-01	327063-01	Keyboard Assy.	A1000	54.00	84.00		54.00	84.00
Keyboard	312716-02		Keyboard Assy.	A2000	39.00	60.00		39.00	60.00
Keyboard	312709-01		Keyboard Assy.	PC40-III/SE286V	35.00	54.00		35.00	54.00



## Spare Parts

Class	Part Number	Sub. Part Number	Description	Product Used With	ASP	MSRP w/o Core	Core Allow.	Net ASP	MSRP w/Core
Mouse	327124-05		Mouse Assy.	A1200/A600/A4000	23.00	39.00		23.00	39.00
Keyboard	363756-01		Keyboard Assy.	A600HD/A600	20.00	31.00		20.00	31.00
LED Assy.	364967-01		LED Assy.	A1200	3.00	5.00		3.00	5.00
Keyboard	364951-01		Keyboard Assy.	A1200	20.00	31.00		20.00	31.00
Drive Assy., FDD	363914-03		Drive Assy., FDD	A600HD/A600	53.00	82.00		53.00	82.00
Cable	364423-01		Cable Assy., FDD	A600HD/A600	3.00	5.00		3.00	5.00
Cable	364423-04		Cable Assy., FDD	A1200	3.00	5.00		3.00	5.00
Cable	364435-01		Cable Assy., HDD	A1200HD/A600HD	6.00	10.00		6.00	10.00
Drive Assy., FDD	363914-03		Drive Assy., FDD	A1200/A600	53.00	82.00		53.00	82.00
Drive Assy., FDD	313248-01		Drive Assy., FDD	A4000	64.00	91.00		64.00	91.00
Drive Assy., HDD	364517-03		Drive Assy., HDD, 120MB	A4000	275.00	425.00		275.00	425.00
Drive Assy., HDD	364654-02		Drive Assy., HDD, 40MB	A1200HD/A600HD	195.00	305.00		195.00	305.00
PCB Assy.	364809-05		PCB Assy.	A600HD/A600	185.00	285.00		185.00	285.00
User's Manual	368435-01		User's Manual, Introduction	A600	3.00	5.00		3.00	5.00
User's Manual	368681-01		User's Manual, Introduction	A600HD	3.00	5.00		3.00	5.00
User's Manual	368997-01		User's Manual, Introduction	A1200HD/A1200	3.00	5.00		3.00	5.00
User's Manual	368712-01		User's Manual	A600HD/A600	3.00	5.00		3.00	5.00
Power Supply	391029-01		Power Supply Assy.	A1200/A600	28.00	44.00		28.00	44.00
Drive Assy., FDD	313248-01		Drive Assy., FDD	A4000	64.00	91.00		64.00	91.00
PCB Assy.	364837-01		PCB Assy.	A4000	470.00	725.00	297.00	173.00	267.00
PCB Assy.	364718-01		PCB Assy.	A1200	195.00	300.00		195.00	300.00
PCB Assy.	364856-01		PCB Assy. 68040	A4000	831.00	1,279.00	607.00	224.00	345.00
Power Supply	391173-01		Power Supply Assy.	A4000	64.00	99.00		64.00	99.00
Keyboard	364447-01		Keyboard Assy.	A4000	44.00	68.00		44.00	68.00
User's Manual	368759-01		User's Manual, AREXX	A600/A1200	10.00	15.00		10.00	15.00
User's Manual	371001-01		User's Manual, HDD	A1200HD	3.00	5.00		3.00	5.00
User's Manual	368763-01		User's Manual, AmigaDOS	A600/A1200	10.00	15.00		10.00	15.00

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### 32/1-1.1 Details of New Professional Systems Service Plan.

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Commodore<sup>®</sup> Amiga<sup>®</sup> Professional Series Computer Systems\* are warranted for 12 months from date of purchase. Systems purchased as of February 1, 1991 are also covered by the CommodoreExpress<sup>™</sup> Gold Service Program. "Gold Service" is NOT part of the 1 year warranty. Customers receive a Gold Service Activation Form with each CPU purchased from an Authorized Dealer, and must complete this form to be eligible for "Gold Service". The program covers peripheral equipment if purchased at the same time.

When the Gold Service Activation Form is returned to Commodore the Customer is given an Activation number and 800 number to be used if service is required. The 800 number is maintained by CommodoreExpress, who, if a hardware repair is necessary, will dispatch an Authorized Gold Service provider to the site, or arrange for a replacement unit to be shipped direct to the Customer.

Gold Service providers must be authorized by Commodore. On-Site Service Applications have been mailed to Authorized Dealers. You must be both an Authorized Dealer and an Authorized Service Center, and have completed service training for Amiga 2000 through Amiga 3000 series hardware to apply for "On-Site" service authorization.

\*Commodore Amiga Professional Series Computer Systems include A2000 and A3000 CPUs as well as factory installed options.



## 32/1-2.1 New FRU Pricing & Labor Rates.

Field Replacement Units (FRU) consist of the major assemblies for each product, such as Main PCB Assemblies, Power Supplies, Drives — Floppy/Hard, and Option Cards. Under the New Service Policy all In-warranty repairs are to the FRU level only, NO component level service will be authorized other than upgrades explicitly detailed in Commodore Field Service Bulletins.

The following list details FRU's for Commodore Professional Series Products effective March 15, 1991.

<i>Part Number</i>	<i>Description</i>	<i>ASP*</i>	<i>Suggested Retail</i>	<i>Warranty Labor Reimbursement</i>	
				<i>Depot</i>	<i>On-Site**</i>
312288-05	A2630 w/2m	\$950.00	\$1,369.00	\$45.00	\$120.00
312288-06	A2630 w/4M	\$1,223.00	\$1,799.00	\$45.00	\$120.00
312365-01	A2052 2M	\$190.00	\$329.00	\$45.00	\$120.00
312370-03	A2058 w/2M	\$237.00	\$349.00	\$45.00	\$120.00
314114-01	A2286 ATBB	\$543.00	\$799.00	\$60.00	\$135.00
312720-05	A2000 PCB ASSY	\$604.00	\$1,099.00	\$60.00	\$135.00
313310-02	A3000 PCB 16MHZ	\$1,842.00	\$3,349.00	\$60.00	\$135.00
313310-04	A3000 PCB 25MHZ	\$2,077.00	\$3,775.00	\$60.00	\$135.00
313310-10	A3000 PCB 25MHZ UX	\$3,572.00	\$6,499.00	\$60.00	\$135.00
312769-01	A2091 HDC	\$135.00	\$199.00	\$45.00	\$120.00
313315-01	DRIVE ASSY FDD 3.5	\$100.00	\$229.00	\$45.00	\$120.00
380111-06	DRIVE ASSY FDD 5.25	\$105.00	\$219.00	\$45.00	\$120.00
380752-01	DRIVE ASSY FDD 3.5	\$110.00	\$259.00	\$45.00	\$120.00
311836-03	DRIVE ASSY HDD 105MB	\$1,300.00	\$1,729.00	\$60.00	\$135.00
311837-01	DRIVE ASSY HDD 50MB	\$538.00	\$979.00	\$60.00	\$135.00
311838-01	DRIVE ASSY HDD 200MB	\$1,450.00	\$2,399.00	\$60.00	\$135.00
312716-02	KEYBOARD A2000	\$66.00	\$119.00	\$35.00	N/A
313323-02	KEYBOARD A3000	\$185.00	\$339.00	\$35.00	N/A
	1930 MONITOR	\$382.00	\$649.00	\$35.00	N/A
	1950 MONITOR	\$479.00	\$799.00	\$35.00	N/A
	1084S MONITOR	\$260.00	\$399.00	\$35.00	N/A
327124-03	MOUSE	\$23.00	\$36.00	\$35.00	N/A
313250-01	EXP CARD A3000	\$77.00	\$139.00	\$35.00	\$110.00
380708-02	POWER SUPPLY A2000	\$161.00	\$299.00	\$45.00	\$120.00
390500-02	POWER SUPPLY A3000	\$218.00	\$399.00	\$45.00	\$120.00

\*ASP — Average Selling Price (Dealer Cost)

\*\*On-Site — Must be dispatched by Commodore.

**Please note:** Full ASP is credited to your account upon receipt of defective In-warranty FRU and ABCD form.

**IMPORTANT:** FRU's returned must be in REPAIRABLE condition and packed in ANTI-STATIC bags. **REMEMBER** — remove any Expansion Ram from PCBs which was not installed by Commodore.

### **32/1-3.1 New ABCD Form & Instructions.**

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The Microcomputer Industry Association's ABCD Form has been selected to replace the NARDA Form used for Warranty claims.

Samples of the ABCD form are enclosed with this Techtopics Issue, along with complete instructions for ordering and filling out the forms. You may use the NARDA forms you have in stock until May 1, 1991, after which the NARDA form will not be accepted.

Authorized service centers may order ABCD forms by calling 1-800-433-5557, and asking for the ABCD forms order desk, or by faxing your order (on an ABCD order form) to: 1-817-387-9367 (Moore Business Forms, Dallas, Texas).



**32/1-3.2 Enclosure: Sample ABCD Warranty Claim Forms w/Instructions.**

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Five sample ABCD forms with detailed instructions have been enclosed with Techtopics Issue 32 — April 1991.

### 32/1-4.1 Monitor Warranty Policy.

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Component repairs to Commodore Monitors which are In-warranty have been discontinued. All defective monitors, while In-warranty, will be exchanged for the customer either by an Authorized service center, or through CommodoreExpress if customer has elected to activate their Gold Service coverage. Service centers will receive a credit of \$35.00 for handling an In-warranty monitor exchange.

Please use the following procedure for Depot exchanges:

- 1) Prepare an ABCD form, (or NARDA, if you are still using that type — valid until May 1, 1991) with all required Customer information.
- 2) Return defective Monitor to: Commodore Parts Depot. Include copies of the completed ABCD form.
- 3) A credit will be issued to your account upon receipt of the defective Monitor at current pricing.
- 4) Order a replacement Monitor through Commodore Parts. Your account will be debited at current pricing.
- 5) A Warranty reimbursement labor rate of \$35.00 will be credited to your account when the ABCD form is processed.

#### ***IMPORTANT:***

- No RA/RMA is required for these warranty returns.
- If no defect is found — No Credit will be issued. The unit will be returned and your account will be charged \$25.00 for handling and return.
- If the unit is not repairable because of abuse or was damaged in shipping, due to improper dealer packaging, the unit will be returned to you and your account will be charged \$25.00 for handling and return. (No Credit will be issued.)



**32/2-0.0 INDEX — PARTS SECTION**

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## 32/2-1.1 Field Replaceable Unit Pricing — Out of Warranty.

The following Out-of-Warranty Core Allowances for Commodore® Professional Series FRU's are effective immediately.

The Core Allowance (Return Credit for Repairable Units) is credited for units in REPAIRABLE condition. Any modifications made to the unit which are not authorized by Commodore will negate the Core Allowance Credit.

<i>Part Number</i>	<i>Description</i>	<i>Core Allowance</i>	<i>Net ASP*</i>	<i>Suggested Retail</i>
312288-05	A2630 w/2M	\$721.00	\$229.00	\$380.00
312288-06	A2630 w/4M	\$948.00	\$275.00	\$460.00
312365-01	A2052 2M	\$73.00	\$117.00	\$195.00
312370-03	A2058 w/2M	\$91.00	\$146.00	\$245.00
314114-01	A2286 ATBB	\$293.00	\$245.00	\$429.00
312720-05	A2000 PCB ASSY	\$405.00	\$199.00	\$329.00
313310-02	A3000 PCB 16MHZ	\$1,473.00	\$369.00	\$615.00
313310-04	A3000 PCB 25MHZ	\$1,688.00	\$389.00	\$649.00
313310-10	A3000 PCB 25MHZ UX	\$3,035.00	\$535.00	\$899.00
312769-01	A2091 HDC	\$0.00	\$135.00	\$199.00
313315-01	DRIVE ASSY FDD 3.5	\$0.00	\$100.00	\$229.00
380111-06	DRIVE ASSY FDD 5.25	\$0.00	\$105.00	\$219.00
380752-01	DRIVE ASSY FDD 3.5	\$0.00	\$110.00	\$259.00
311836-03	DRIVE ASSY HDD 105MB	\$900.00	\$400.00	\$679.00
311837-01	DRIVE ASSY HDD 50MB	\$199.00	\$339.00	\$565.00
311838-01	DRIVE ASSY HDD 200MB	\$1,030.00	\$420.00	\$705.00
312716-02	KEYBOARD A2000	\$0.00	\$66.00	\$119.00
313323-02	KEYBOARD A3000	\$113.00	\$72.00	\$129.00
	1930 MONITOR	\$232.00	\$150.00	\$255.00
	1950 MONITOR	\$316.00	\$163.00	\$275.00
	1084S MONITOR	\$140.00	\$120.00	\$240.00
327124-03	MOUSE	\$0.00	\$23.00	\$36.00
313250-01	EXP CARD A3000	\$0.00	\$77.00	\$139.00
380708-02	POWER SUPPLY A2000	\$87.00	\$74.00	\$125.00
390500-02	POWER SUPPLY A3000	\$140.00	\$78.00	\$139.00

\*ASP — Average Selling Price (Dealer Cost). NET ASP — ASP (see INFO section) minus Core Allowance.

**IMPORTANT** — FRU's returned must be in REPAIRABLE condition and packed in ANTI-STATIC bags. **REMEMBER** — remove any Expansion Ram from PCBs which was not installed by Commodore.

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### 32/3-1.1 A2320 Display Enhancer — Field Service Bulletin #A02.

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The A2320 Display Enhancer board (PN# 310292-01) may not show a color difference (Gray Scale) if all RGB values are set to seven (7) for the background and you are displaying an image with values set to eight (8). This is due to the loading effects of the 180 ohm resistors between the Amber IC and Video Hybrid DAC. The difference between the MSB and the LSB is such that the DAC output levels are incorrect.

Field Service Bulletin #A02 — Authorized Service Agents may replace any A2320 PCB, which is under warranty, and displays these symptoms. The warranty labor reimbursement rate for PCB replacement is \$45.00

Please use Special Instruction Code “A02” in field 15 of ABCD form, which is to be returned with the defective A2320 PCB. Full credit is issued when the defective PCB is received by the Parts Depot. Remember you must order a replacement board through the Parts Department.

For Out-of-Warranty repairs replace 180 ohm Resistor packs at locations RP301, RP302, and RP303 with 33 ohm Resistor packs, four (4) resistors, eight (8) pins,  $\pm 2\%$ . Approved vendors: Bourns Low Profile 33 ohm 4608x102336, and Murata Low Profile 33 ohm RSL8Y330G.

Technote — New resistor packs may be soldered to the pins of the 180 ohm Resistor packs on the back of the PCB without removing them. As long as they lay flat against the PCB they will not interfere with installation.

### **32/3-2.1 A590 Hard Drives — Grounding on Power Connectors, CN7, CN7A.**

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Any A590 Hard Drives with Rev 7.0 PCB assemblies which are returned for service should have the following modification included in the repair.

Power Connectors CN7 and CN7A, only one of which is stuffed depending on which type of Hard Drive is used in the unit, must have pins 2 and 3 shorted (these are the two (2) middle pins of the four (4) pin connector). Solder jumper on trace side of PCB. This modification changes the PCB Revision to Rev 7.1.

### 32/3-3.1 A2091 HDC — New Rom Rev 6.6 corrects Dual SCSI problem on PCB's with WD SCSI Controller type A, Revisions 04/08.\*\*

A2091 Hard Drive Controller cards which lock up the system when accessing two or more SCSI devices can be upgraded, under warranty, by replacing both Roms at locations U12 and U13 on the A2091.

\*\*If Reselection is turned ON.

<i>Part Number</i>	<i>Description</i>	<i>Location</i>
390722-02	IC ROM Rev 6.6 ODD	U12
390721-02	IC ROM Rev 6.6 EVEN	U13
317806-04	DISKETTE, A2091 INSTALL V1.30	

**IMPORTANT NOTE:** Only units which have an "A" type Western Digital SCSI controller WD33C93A, revision 04 or 08 (CBM PN# 390206-03) are effected by this upgrade.

The new V1.30 Install Disk for the A2091 Hard drive controller card features the new icon "Reselect-On" which can be used in conjunction with the new V6.6 ROM's to support multiple SCSI devices.

This ReselectOn program allows the user to change the setting of the Reselect bit on the rigid disk block of the SCSI drive to "ON" without having to reformat the whole drive. With the reselect bit turned "ON", the hard drive will release the SCSI controller, when not in use, allowing the controller to access other SCSI devices. Performance is greatly improved. With the reselect bit set to "OFF", the drive will not release the SCSI controller so it (the controller) can service other devices.

Earlier versions of the A2091 ROM's did not fully support the use of multiple SCSI devices, therefore all factory configured drives were formatted with the reselect turned "OFF". The only way to change the reselect setting prior to the "ReselectOn" program was by going into HDToolbox, changing the drive configuration setting and then reformatting the drive. Now you can simply double-click on the "ReselectOn" icon.

To use multiple SCSI devices with the A2091 controller, you must first upgrade the hardware with V6.6 ROM's. Next you double-click on the "ReselectOn" icon located on the V1.30 A2091 Install Disk. The program will prompt you with a couple of questions and when the program has run it will display the message "Rigid disk block update complete".

**Note:** Running the ReselectOn program will not affect the data on the hard drive, however Commodore recommends a complete hard drive backup as a precaution before any attempt is made to reconfigure the system.

The HDToolbox utility does not read the current settings of the hard drive as it was formatted, and therefore cannot be used to determine the current state of the reselect bit either before or after using ReselectOn.



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**32/3-4.1 A2000 — Techtip — Mouse Problems, Check Fuse, F1.**

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On Amiga® A2000 Main PCB assemblies a blown fuse, at location F1, (User +5 volts) will prevent the Mouse pointer from moving. The Mouse buttons will still work. For Out-of-Warranty repairs, replace fuse F1.

The EMI filters on the Mouse Ports, if shorted to the bottom shield, may cause the right Mouse button not to function. This may be corrected by shortening the leads of the EMI's on the solder side of the PCB.

**32/3-5.1 A2286 AT Bridgeboard™ — Use in A3000 Systems.**

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The 68030 Central Processor used in the Amiga A3000 Systems has a CACHE memory feature which can interfere with 80286 — Amiga operations. This feature should be disabled.

In the “S” directory, Startup-sequence (S/Startup-sequence) before the “BINDDRIVERS” statement add the following command, CPU NODATACACHE.

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**32/4-1.1 1802 Monitor — Techtip — No Color, Check R225.**

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1802 Monitors, Daewoo type, with NO COLOR may have a defective Resistor at location R225, (5.1K ohm, 1W.) For Out-of-Warranty repairs replace R225.

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### 32/5-1.1 SL386SX — Configuring RAM in Setup.

To configure RAM in SL386SX systems, enter the second screen of the SetUp menu (Ctrl-Alt-S followed by PgUp to enter CS8221 options).

**NO SIMM'S INSTALLED:** With no added RAM installed in the SL386SX, you can either Enable the Shadow Bios Rom or 640-1024K Relocation, but NOT both at the same time.

**SIMM'S INSTALLED — EXTENDED MEMORY ONLY:** To use all the added RAM as Extended Memory, Enable the Shadow Bios Rom, and Disable the 640-1024 Relocation option.

**SIMM'S INSTALLED — EXPANDED (EMS) MEMORY:** There are many ways to configure system memory and many possible combinations to consider. The table below illustrates four possible settings, based on Memory size, to configure RAM as Expanded Memory.

Shadow should be Enabled, and the NEMM.SYS driver must be installed in CONFIG.SYS.

	<i>Sample 1</i>	<i>Sample 2</i>
EMS Base Memory Address	c800	c800
EMS Base I/O Address	208h/209h	218h/219h
EMS Page 0 Reg. Extension	4M to 6M	1M to 2M
EMS Page 1 Reg. Extension	4M to 6M	1M to 2M
EMS Page 2 Reg. Extension	4M to 6M	1M to 2M
EMS Page 3 Reg. Extension	4M to 6M	1M to 2M
EMS Memory Size	1.0M	2.0M
EMS Wait States	2 Wait States	2 Wait States
EMS Memory	Enabled	Enabled

	<i>Sample 3</i>	<i>Sample 4</i>
EMS Base Memory Address	c800	c800
EMS Base I/O Address	208h/209h	218h/219h
EMS Page 0 Reg. Extension	2M to 4M	1M to 2M
EMS Page 1 Reg. Extension	2M to 4M	1M to 2M
EMS Page 2 Reg. Extension	2M to 4M	1M to 2M
EMS Page 3 Reg. Extension	2M to 4M	1M to 2M
EMS Memory Size	3.0M	4.0M
EMS Wait States	2 Wait States	2 Wait States
EMS Memory	Enabled	Enabled

**IMPORTANT NOTE:** If the configuration is not setup correctly PARITY ERROR messages may be generated. For instance if you try to specify only ONE Wait State. Consult User manual for more details.



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| <b>30/1-1.1</b> | <b>Service warranty policy numbers and conditions.</b>                   |
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| <b>30/1-5.1</b> | <b>A3000 - PC60-III, Field Replacement Units Policy.</b>                 |
- 

**30/1-1.1    Service warranty policy numbers and conditions.**

The Info section of Techtopics will include, as a standard feature, a list of active field fixes which are covered under warranty.

This feature will always be the first bulletin in the Info section, and will be updated via the Service Bulletin Board, CTOC, whenever a change in the warranty status of field fixes is issued.

A warranty policy number has been assigned to each active field fix covered under warranty. Effective immediately, all claims being submitted by authorized service centers must include the warranty policy number, as the part number, on the narda form.

Active Commodore field service warranty fixes, as of 2/5/90

- 1) 1084S-P Monitor  
Warranty policy number - W1084-1288  
(Instructions are included with 1084S-P repair kit, CBM PN# 314891-01).
- 2) A2000 Rev6.0 PCB  
Warranty policy number - W2000-0989  
(See Techtopic bulletins - 27/3-1.1, 27/3-2.1 & 27/3-3.1, in Amiga section 3, under A2000 past bulletins for details).
- 3) A2286 AT Bridgeboard  
Warranty policy number - W2286-1289  
(See Techtopic bulletin - 28/3-3.1 in Amiga section 3, under current bulletins for details).

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**30/1-1.1 Service warranty policy numbers and conditions. (Cont.)**

4) PC30-III Rev 1.4 PCB/Coprocessor -

Warranty policy number - WPC30-0590

(See Techtopic bulletin 28/5-3.1 in PC section 5, undercurrent bulletins for details).

**30/1-2.1 Service training schedule, October thru December, 1990.**

1990 Training schedule, September thru December. Please contact John Dimeo for more information.

Month	Date	Training Days	Location	Products	Status
Oct	17-18	Wed-Thur	Newark, NJ	Amiga	Open
Oct	30-31	Tue-Wed	Miami, FL	Amiga	Open
Nov	1-2	Thur-Fri	Miami, FL	PC	Open
Nov	13-16	Tue-Fri	Minneapolis	PC	Open
Nov	27-28	Tue-Wed	Detroit	Amiga / PC	Open
Dec	11-14	Tue-Fri	Seattle	Amiga / PC	Open

**30/1-2.2 Enclosure: October thru December service training course outline.**

Included with issue 30 is a course outline for the service training program, from October thru December 1990.

**30/1-3.1 Amiga CPU one year warranty.**

Effective April 2, 1990 Commodore will offer a one year Warranty on all Amiga computers. This new warranty will cover parts and labor on the CPU's. The warranty includes all units purchased after January 1, 1990.

**30/1-4.1 Amiga accessories one year warranty.**

Effective June 1, 1990 Commodore will offer a one year warranty on all Amiga accessories. This new warranty will cover parts and labor on the accessories. The warranty includes all units purchased after April 1, 1990.

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**30/1-5.1    A3000 - PC60-III, Field Replacement Units Policy.**

Commodore is introducing a Field Replacement Units (FRU) policy, for Commodore's A3000 and PC60-III. This policy is to replace all defective major assemblies. For example; if a mother board is defective, it will be returned to Commodore. You must then reorder a new one.

In the near future, the Field Replacement Unit (FRU) policy, will be implemented for all Commodore product lines. There will be a bulletin sent with all the details.

Exceptions may be made to this policy for certain system upgrades.

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**End 30/1**



## 2

## PARTS

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30/2.1.1	Rodime 40MB Hard Drive sub to Quantum 40MB Hard Drive.
30/2-2.1	A3000 Spare parts list.

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30/2-1.1 Rodime 40MB Hard Drive sub to Quantum 40MB Hard Drive.

Sub 311833-01 to 314687-01.

See Techtopic number 30/3-4.1 for more details.

30/2-2.1 A3000 Spare parts list.

Commodore Parts Department now has the following parts in stock.

Part Number	Description	Dealer Billing	Return Credit
390500-02	Power Supply	155.25	
313250-01	PCB assy - Daughter PCB	57.10	
313310-02	PCB assy - 16MHZ	1580.00	600.00
313310-04	PCB assy - 25MHZ	1780.00	700.00
313323-02	Keyboard	138.75	
313315-01	Drive assy, Floppy	130.00	
313440-01	Drive assy, Hard 40MB	675.00	100.00
311836-03	Drive assy, HD Quantum P105S 100MB	1025.00	200.00
311836-04	Drive assy, HDQuantum LP	1025.00	200.00
604400-08	Button, A3000 Chinon FDD	1.30	

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End 30/2

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## CBM

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30/4-0.0     Index - CBM Section Techtopics Issue 30.

30/4-1.1     1571 Drive Assemblies - Alps and Newtronics.

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30/4-1.1     1571 Drive Assemblies - Alps and Newtronics.

1571 Drives use two types of drive assemblies.

- 1) CBM PN# 252092-01 Drive assy - Alps
- 2) CBM PN# 252083-01 Drive assy - Newtronics

Most units in the United States use the Newtronics type of drive. The Alps drive does not fit in the Newtronics bezel, and visa-versa. Please take note.

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End 30/4

To: All Service Centers

Please find the service training calendar for October through December.

Currently, Commodore offers Amiga service training in at least three (3) major cities per quarter. A calendar is released quarterly indicating the cities and dates of these seminars. There will be no charge to service centers or dealers for these classes.

The material to be covered in each course has been condensed into two (2) full days, starting at 9:00 AM and ending at 5:30 PM. It is imperative that attendees be present for the entire course in order to receive certification. Attendees should make travel arrangements accordingly. (Departure flight should be scheduled no earlier than 7:00 PM of the second day).

- Two day Amiga classes include A500/A2000 and A3000.
- Two day PC classes include PC10/20-III, PC40-III, and PC60-III.

Since class space is limited, requests should be submitted promptly.

To enroll in the course, complete the attached Training Request Form and return it to:

Commodore Business Machines  
1200 Wilson Drive  
West Chester, PA 19380  
Attention: John DiMeo, Technical Training

Please note that when both an Amiga and PC class are offered in the same city, you will need to complete a separate application if you wish to attend both classes. Upon receipt of your Training Request Form, Commodore will return to you a confirmation letter and information about the exact location of the training.

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# Amiga Service Training

## Course Outline

Objective	To increase the technician's awareness of system operations and in the event of a failure, proper procedure to perform system diagnostics at the socketed chip level.
Prerequisite	The technician should have no less than four years of formal electronics training.
Outline	<ul style="list-style-type: none"><li>I. A500/A2000 Operation Theory<ul style="list-style-type: none"><li>A. Amiga Architecture<ul style="list-style-type: none"><li>1. Custom Chips</li><li>2. Circuit Description</li></ul></li><li>B. Troubleshooting Tips</li></ul></li><li>II. A500/A2000 Hands-on Lab<ul style="list-style-type: none"><li>A. Troubleshooting Techniques</li><li>B. Defective Chip Determination</li></ul></li><li>III. A500/A2000 Drive Diagnostics<ul style="list-style-type: none"><li>A. Loading and Running Drive Alignment Disk</li><li>B. Physical Adjustment and Head Alignment</li><li>C. Final Drive Test<ul style="list-style-type: none"><li>1. Speed</li><li>2. Read/Write</li><li>3. Alignment</li></ul></li></ul></li></ul>

# PC Service Training

## Course Outline

Objective	To increase the technician's awareness of system operations and in the event of a failure, proper procedure to perform system diagnostics.
Prerequisite	The technician should have no less than four years of formal electronics training.
Outline	<ul style="list-style-type: none"><li>I. PC10/PC20-III Operation Theory<ul style="list-style-type: none"><li>A. PC Architecture<ul style="list-style-type: none"><li>1. Custom Chips</li><li>2. Circuit Description</li></ul></li><li>B. Troubleshooting Tips</li></ul></li><li>II. PC 10/PC 20-III Drive Diagnostics<ul style="list-style-type: none"><li>A. Loading and Running Disk-based Diagnostics</li><li>B. System Board Troubleshooting</li><li>C. Drive Diagnostics<ul style="list-style-type: none"><li>1. Speed</li><li>2. Read/Write</li><li>3. Alignment Check</li></ul></li></ul></li><li>III. PC10/PC20/PC40-III Hands-on Lab<ul style="list-style-type: none"><li>A. Troubleshooting Techniques</li><li>B. Defective Chip Determination</li></ul></li><li>IV. PC 60-III Operation Theory<ul style="list-style-type: none"><li>A. Board Level Architecture</li><li>B. Removal from Tower Case</li></ul></li><li>V. PC60-III Hands-on Lab<ul style="list-style-type: none"><li>A. Signal Tracing</li><li>B. Component Identification</li><li>C. Assembly Level Repair</li></ul></li></ul>





# Commodore Business Machines, Inc.

For enrollment and scheduling information contact:  
Mary Lou Light  
Training Manager  
Commodore Business Machines  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 344-3036

## Professional Development Series

### Commodore Training • October 1990

Service Training				
Mon	Tues	Wed	Thurs	Fri
1	2	3	4	5
8	9	10 Amiga Service General Computer Allentown, PA	11	12
15	16	17 Amiga Service Newark, NJ	18	19
22	23	24	25	26
29	30 Amiga Service Miami, FL	31		

John DiMeo, Service Trainer  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 431-9100 extension 9214



# Commodore Business Machines, Inc.

For enrollment and scheduling information contact:

Mary Lou Light  
Training Manager  
Commodore Business Machines  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 344-3036

## Professional Development Series

### Commodore Training • November 1990

Service Training				
Mon	Tues	Wed	Thurs	Fri
			1 PC Service Miami, FL	2
5	6	7	8	9
12	13 Amiga Service Minneapolis, MN	14	15 PC Service Minneapolis, MN	16
19	20	21	22	23
26	27 Amiga Service Detroit, MI	28	29	30

John DiMeo, Service Trainer  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 431-9100 extension 9214



# Commodore Business Machines, Inc.

For enrollment and scheduling information contact:

Mary Lou Light  
Training Manager  
Commodore Business Machines  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 344-3036

## Professional Development Series

### Commodore Training • December 1990

Service Training				
Mon	Tues	Wed	Thurs	Fri
3	4	5	6	7
10	11 Amiga Service Seattle, WA	12	13 PC Service Seattle, WA	14
17	18	19	20	21
24	25	26	27	28
30				

John DiMeo, Service Trainer  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 431-9100 extension 9214

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## Trainig Request Form

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# Service Training

Please complete one per attendee. Return completed form 30-60 days prior to requested date.

1. Requested Course \_\_\_\_\_

2. Requested Date \_\_\_\_\_ Alternate Date \_\_\_\_\_

3. Technician \_\_\_\_\_

Company Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Service Account Number \_\_\_\_\_

4. Briefly describe the skill level of attending technician.

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

Please return completed form to:

Commodore Business Machines

1200 Wilson Drive

West Chester, PA 19380

Attn: John DiMeo

CBM Use Only--Do not write in this space

CBM Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Signature (attending technician): \_\_\_\_\_ Date: \_\_\_\_\_

Signature (service trainer): \_\_\_\_\_ Date: \_\_\_\_\_

# APRIL - JUNE 1990

## ISSUE 29



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29/1-1.1	SERVICE WARRANTY POLICY NUMBERS AND CONDITIONS.
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THE INFO SECTION OF TECHTOPICS WILL INCLUDE, AS A STANDARD FEATURE, A LIST OF ACTIVE FIELD FIXES WHICH ARE COVERED UNDER WARRANTY.

THIS FEATURE WILL ALWAYS BE THE FIRST BULLETIN IN THE INFO SECTION, AND WILL BE UPDATED VIA THE SERVICE BULLETIN BOARD, CTC, WHENEVER A CHANGE IN THE WARRANTY STATUS OF FIELD FIXES IS ISSUED.

A WARRANTY POLICY NUMBER HAS BEEN ASSIGNED TO EACH ACTIVE FIELD FIX COVERED UNDER WARRANTY. EFFECTIVE IMMEDIATELY, ALL CLAIMS BEING SUBMITTED BY AUTHORIZED SERVICE CENTERS MUST INCLUDE THE WARRANTY POLICY NUMBER, AS THE PART NUMBER, ON THE NARDA FORM.

ACTIVE COMMODORE FIELD SERVICE WARRANTY FIXES, AS OF 2/5/90

1) 1084S-P MONITOR

WARRANTY POLICY NUMBER - W1084-1288

(INSTRUCTIONS ARE INCLUDED WITH 1084S-P REPAIR KIT, CBM PN# 314891-01).

2) A2000 REV6.0 PCB

WARRANTY POLICY NUMBER - W2000-0989

(SEE TECHTOPIC BULLETINS - 27/3-1.1, 27/3-2.1 & 27/3-3.1, IN AMIGA SECTION 3, UNDER A2000 PAST BULLETINS FOR DETAILS.

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**29/1-1.1 SERVICE WARRANTY POLICY NUMBERS AND CONDITIONS. (CONT)****3) A2286 AT BRIDGEBOARD**

WARRANTY POLICY NUMBER - W2286-1289

(SEE TECHTOPIC BULLETIN - 28/3-3.1 IN AMIGA SECTION 3, UNDER CURRENT BULLETINS FOR DETAILS).

**4) PC30-III REV 1.4 PCB/COPROCESSOR -**

WARRANTY POLICY NUMBER - WPC30-0590

(SEE TECHTOPIC BULLETIN 28/5-3.1 IN PC SECTION 5, UNDER CURRENT BULLETINS FOR DETAILS).

**29/1-2.1 SERVICE TRAINING SCHEDULE, JULY THRU SEPTEMBER 1990.**

1990 TRAINING SCHEDULE, JULY THRU SEPTEMBER. PLEASE CONTACT JOHN DIMEO FOR MORE INFORMATION.

MONTH	DATE	DAYS	LOCATION	PRODUCTS	STATUS
JULY	2-3	MON-TUE	WEST CHESTER	AMIGA	OPEN
JULY	5-6	THU-FRI	WEST CHESTER	PC	OPEN
JULY	9-10	MON-TUE	WEST CHESTER	PC	OPEN
JULY	12-13	THU-FRI	WEST CHESTER	AMIGA	OPEN
JULY	23-27	MON-FRI	DALLAS	AMIGA/PC	OPEN
AUGUST	6-7	MON-TUE	WEST CHESTER	AMIGA	OPEN
AUGUST	8-9	WED-THU	WEST CHESTER	PC	OPEN
AUGUST	13-14	MON-TUE	WEST CHESTER	PC	OPEN
AUGUST	15-16	WED-THU	WEST CHESTER	AMIGA	OPEN
AUGUST	27-31	MON-FRI	ATLANTA	AMIGA/PC	OPEN
SEPTEMBER	6-7	MON-TUE	WEST CHESTER	AMIGA	OPEN
SEPTEMBER	17-21	MON-FRI	SUNNYVALE	AMIGA/PC	OPEN
SEPTEMBER	24-28	MON-FRI	LONGBEACH	AMIGA/PC	OPEN

**29/1-2.2 ENCLOSURE: JULY THRU SEPTEMBER SERVICE TRAINING COURSE OUTLINE.**

INCLUDED WITH ISSUE 29 IS A COURSE OUTLINE FOR THE SERVICE TRAINING PROGRAM, FROM JULY THRU SEPTEMBER 1990.

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**29/1-3.1 AMIGA CPU ONE YEAR WARRANTY.**

EFFECTIVE APRIL 2, 1990 COMMODORE WILL OFFER A ONE YEAR WARRANTY ON ALL AMIGA COMPUTERS. THIS NEW WARRANTY WILL COVER PARTS AND LABOR ON THE CPU'S. THE WARRANTY INCLUDES ALL UNITS PURCHASED AFTER JANUARY 1, 1990.

**29/1-4.1 AMIGA ACCESSORIES ONE YEAR WARRANTY.**

EFFECTIVE JUNE 1, 1990 COMMODORE WILL OFFER A ONE YEAR WARRANTY ON ALL AMIGA ACCESSORIES. THIS NEW WARRANTY WILL COVER PARTS AND LABOR ON THE ACCESSORIES. THE WARRANTY INCLUDES ALL UNITS PURCHASED AFTER APRIL 1, 1990.

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**END 29/1**

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## PARTS

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29/2-4.1	A3000 SPARE PARTS LIST.

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29/2-1.1	A2091 SPARE PARTS LIST.
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COMMODORE PARTS DEPARTMENT NOW HAVE THE FOLLOWING PARTS IN STOCK.

PART NUMBER	DESCRIPTION	PRODUCT	RETURN CREDIT	DEALER BILLING
314674-01	SYSTEM SCHEMATICS	A2091		\$16.50
363227-02	USER MANUAL (ENG.)	A2091		4.00
317806-01	DISK ASSY. CNTRL PROGS/INSTALL	A2091		11.00
313440-01	HARD DRIVE 40MB SCSI (QUANTUM)	A2091	100.00	575.00
312769-01	PCB ASSY (REV 4)	A2091	165.00	280.00
390333-03	IC 16L8A RAM CONTRL.	A2091		5.50
390563-02	IC DMAC	A2091		78.50
390206-01	IC WD33C93	A2091		44.00
390722-01	IC EPROM ODD DRIVER	A2091		9.90
390721-01	IC EPROM EVEN DRIVER	A2091		9.90
312573-01	CABLE DATA	A2091		TBA
312646-01	CABLE POWER	A2091		TBA

[REPEAT OF 28/2-2.1]

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**29/2-2.1 NEW LEVEL 1 REPAIR KIT - PN 314032-21, INCLUDES A2091 AND A2630.**

314032-21 A2000 LEVEL 1 REPAIR KIT DEALER BILLING 2,966.00

PART NUMBER	DESCRIPTION	DEALER BILLING	RETURN CREDIT	COST
312769-01	A2091 PCB HDC	280.00	165.00	115.00
312716-02	KEYBOARD	82.50		82.50
312720-05	A2000PCB	920.00	625.00	295.00
312288-05	A2630 PCB ASSY	1500.00	800.00	700.00
314067-03	IC REPAIR KIT	***180.00		180.00
327124-03	MOUSE	49.50		49.50
380708-02	POWER SUPPLY	99.00		99.00
380752-01	DRIVE ASSY FDD 3.5	130.00		130.00
TOTAL		3241.00	1590.00	1651.00
KIT PRICE		2966.00	1590.00	1376.00
A2000 LEVEL 1 KIT SAVINGS		275.00		
*** IC KIT SAVINGS		75.35		
TOTAL SAVINGS		<b>\$350.35</b>		

**29/2-3.1 RODIME 40MB HARD DRIVE SUB TO QUANTUM 40MB HARD DRIVE.**

SUB 311833-01 TO 314687-01.

SEE TECH TOPIC NUMBER 29/3-12.1 FOR MORE DETAILS.



## IMPORTANT NOTICE

PLEASE REPLACE TECH TOPICS ISSUE 29 (SECTION 2 PAGE 3) WITH THIS PAGE. THIS IS THE CORRECTED PAGE!

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**29/2-4.1    A3000 SPARE PARTS LIST.**

COMMODORE PARTS DEPARTMENT NOW HAS THE FOLLOWING PARTS IN STOCK.

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>DEALER BILLING</u>	<u>RETURN CREDIT</u>
390500-02	POWER SUPPLY	155.25	
313250-01	PCB ASSY - DAUGHTER PCB	57.10	
313310-02	PCB ASSY - 16MHZ	1580.00	600.00
313310-04	PCB ASSY - 25MHZ	1780.00	700.00
313323-02	KEYBOARD	138.75	
313315-01	DRIVE ASSY, FLOPPY	130.00	
313440-01	DRIVE ASSY, HARD 40MB	675.00	100.00
311836-03	DRIVE ASSY, HD QUANTUM P105 100MB	1025.00	200.00
311836-04	DRIVE ASSY, HD QUATUM LP 100MB	1025.00	200.00
604400-08	BUTTON, A3000 CHINON FDD	1.30	

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**END 29/2**

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## CBM

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29/4-2.1	1571 DRIVE ASSEMBLIES - ALPS AND NEWTRONICS.

### 29/4-1.1 WARRANTY CLAIMS FOR DISCONTINUED COMMODORE PRODUCTS.

EFFECTIVE IMMEDIATELY, ALL WARRANTY CLAIMS FOR DISCONTINUED COMMODORE PRODUCTS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING, WILL REQUIRE A COPY OF THE CUSTOMER BILL OF SALE TO BE RETURNED WITH THE WARRANTY CLAIM PAPERWORK. THE SERIAL NUMBER OF THE UNIT MUST BE INCLUDED ON THE NARDA FORM. CLAIMS WITHOUT THIS INFORMATION WILL BE REJECTED.

ANY QUESTIONS SHOULD BE DIRECTED TO THE TECHNICAL HOTLINE.

+4	1581	2002	1802	MPS802	1526
C16	C128	1701	1902	MPS803	
VIC 20	C128D	1702	1902A	DPS1101	
C64	1070	1702T	1084	1515	
1541	1080	CM141	MPS1000	1520	
1571	1080A	C1802	MPS801	1525	

[REPEAT OF 28/4-2.1]

### 29/4-2.1 1571 DRIVES ASSEMBLIES - ALPS AND NEWTRONICS.

1571 DRIVES USE TWO TYPES OF DRIVE ASSEMBLIES.

- 1) CBM PN# 252092-01 DRIVE ASSY - ALPS
- 2) CBM PN# 252083-01 DRIVE ASSY - NEWTRONICS

MOST UNITS IN THE UNITED STATES USE THE NEWTRONICS TYPE OF DRIVE. THE ALPS DRIVE DOES NOT FIT IN THE NEWTRONICS BEZEL, AND VISA-VERSA. PLEASE TAKE NOTE.

END 29/4

**JANUARY - MARCH 1990**  
**ISSUE 28**



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  - 28/2-2.1 A2091 SPARE PARTS LIST.
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  - 28/3-2.1 A590 FAST FILE SYSTEM UPDATE.
  - 28/3-3.1 A2286 UPGRADE ROMS V3.6 AND PAL CHIPS
  - 28/3-4.1 A2088 UPGRADE ROM
  - 28/3-5.1 A2091 MEMORY AUTO-CONFIGURATION LIMITATIONS.
  - 28/3-6.1 A2620/A2630 IC MEMORY 262,144 ADDRESS X 4 BIT DRAM.
  - 28/3-7.1 A2091 IC MEMORY 262,144 ADDRESS X 4 BIT DRAM.
  - 28/3-8.1 A2091 HDC - POWER CABLE AND DATA CABLE AVAILABILITY.
  - 28/3-9.1 IMPORTANT NOTICE - AMIGA 1000 KEYBOARDS
  - 28/3-10.1 A2091 ROM UPGRADE TO REVISION 6.1.
  - 28/3-11.1 A590 ROM UPGRADE TO REVISION 6.1.
  - 28/3-12.1 KIT A590 HDD EXCHANGE (EPSON HM755 TO WD93028-X-A).
  - 28/3-13.1 A2091 SYSTEM SCHEMATICS, CBM PN# 314674-01 RELEASE.
  - 28/3-13.2 ENCLOSURE: A2091 SYSTEM SCHEMATICS.
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  - 28/5-2.1 BIOS ROM REV 4.38 UPGRADE - PC10-III, PC20-III, COLT.
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  - WARRANTY POLICY NUMBER - WPC30-0590.
  - 28/5-4.1 PC40-III PCB REVISION 8.X - DMA CHANNEL 7 ACKNOWLEDGE SIGNAL.
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**1****INFO**

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 28/1-1.1 SERVICE TRAINING SCHEDULE, JANUARY - JUNE 1990.  
 28/1-2.1 SERVICE WARRANTY POLICY NUMBERS AND CONDITIONS.

**28/1-1.1 SERVICE TRAINING SCHEDULE, JANUARY - JUNE 1990.**

1990 TRAINING SCHEDULE, JANUARY THRU JUNE. PLEASE CONTACT JOHN DIMEO FOR MORE INFORMATION.

<u>MONTH</u>	<u>DATE</u>	<u>TRAINING DAYS</u>	<u>PRODUCTS</u>	<u>STATUS</u>
MAY	2-4	WED-FRI	PC	OPEN
MAY	7-11	MON-FRI	MONITORS	OPEN
MAY	14-18	MON-FRI	AMIGA	OPEN
JUNE	6-8	WED-FRI	CBM	OPEN
JUNE	11-15	MON-FRI	MONITORS	OPEN
JUNE	18-22	MON-FRI	AMIGA	OPEN

[REPEAT OF 27/1-2.1]

**28/1-2.1 SERVICE WARRANTY POLICY NUMBERS AND CONDITIONS.**

THE INFO SECTION OF TECHTOPICS WILL INCLUDE, AS A STANDARD FEATURE, A LIST OF ACTIVE FIELD FIXES WHICH ARE COVERED UNDER WARRANTY.

THIS FEATURE WILL ALWAYS BE THE FIRST BULLETIN IN THE INFO SECTION, AND WILL BE UPDATED VIA THE SERVICE BULLETIN BOARD, CTCOC, WHENEVER A CHANGE IN THE WARRANTY STATUS OF FIELD FIXES IS ISSUED.

A WARRANTY POLICY NUMBER HAS BEEN ASSIGNED TO EACH ACTIVE FIELD FIX COVERED UNDER WARRANTY. EFFECTIVE IMMEDIATELY, ALL CLAIMS BEING SUBMITTED BY AUTHORIZED SERVICE CENTERS MUST INCLUDE THE WARRANTY POLICY NUMBER, AS THE PART NUMBER, ON THE NARDA FORM.

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**28/1-2.1 SERVICE WARRANTY POLICY NUMBERS AND CONDITIONS. (CONT)**

ACTIVE COMMODORE FIELD SERVICE WARRANTY FIXES, AS OF 2/5/90

- 1) 1084S-P MONITOR  
WARRANTY POLICY NUMBER - W1084-1288  
(INSTRUCTIONS ARE INCLUDED WITH 1084S-P REPAIR KIT, CBM PN# 314891-01).
- 2) A2000 REV6.0 PCB  
WARRANTY POLICY NUMBER - W2000-0989  
(SEE TECHTOPIC BULLETINS - 27/3-1.1, 27/3-2.1 & 27/3-3.1, IN AMIGA SECTION 3, UNDER A2000 PAST BULLETINS FOR DETAILS).
- 3) A2286 AT BRIDGEBOARD  
WARRANTY POLICY NUMBER - W2286-1289  
(SEE TECHTOPIC BULLETIN - 28/3-3.1 IN AMIGA SECTION 3, UNDER CURRENT BULLETINS FOR DETAILS).
- 4) PC30-III REV 1.4 PCB/COPROCESSOR -  
WARRANTY POLICY NUMBER - WPC30-0590  
(SEE TECHTOPIC BULLETIN 28/5-3.1 IN PC SECTION 5, UNDER CURRENT BULLETINS FOR DETAILS).

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END 28/1.

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## PARTS

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28/2.1.1	ERRATUS #2 - PARTS PRICE BOOK ISSUED SEPT. 1, 1989.
28/2-2.1	A2091 SPARE PARTS LIST.

### 28/2-1.1 ERRATUS #2 - PARTS PRICE BOOK ISSUED SEPT. 1, 1989.

PLEASE MAKE TO FOLLOWING ADDITIONS, SUBSTITUTIONS,  
AND CORRECTIONS TO THE RED PARTS PRICE BOOK ISSUED  
SEPT. 1, 1989.

PART NUMBER	DESCRIPTION	PRODUCT	DEALER BILLING	ACTION
1540001-03	PCB ASSY- LONG	1540/1541		NLA
1540048-01	PCB ASSY-ALPS	1541	\$88.00	REMOVE SUB
251868-01	POWER SUPPLY ASSY	1541	SUB TO 1540002-01	
252083-02	DRIVE ASSY-NEWT	128D/1571		USED ON 1571 ALSO
252092-01	DRIVE ASSY-ALPS	1571	SUB TO 314673-01	
310163-01	PCB ASSY	+4		NLA
312711-01	DRIVE ASSY, HARD 20MB - WESTERN DIGITAL		CHANGE DESCRIPTION	
312711-02	DRIVE ASSY, HARD 20MB - WD OR EPSON		CHANGE DESCRIPTION	
314093-01	KEY SINGLE	VIC	NLA	
314673-01	KIT 1571 REPLACEMENT (FROM ALPS DRIVE TO NEWT)		\$148.50	



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28/2-1.1 ERRATUS #2 - PARTS PRICE BOOK ISSUED SEPT. 1, 1989. (CONT)

PART NUMBER	DESCRIPTION	PRODUCT	DEALER BILLING	ACTION
314675-01	KIT A1000 DRIVE REPLACEMENT (327142-01 IS FOR A500, KIT ADDS BRACKET TO ALLOW USE IN A1000)		\$110.00	
315739-02	MANUAL USER 2286/2088		CHANGE TO -03	
317746-01	DISKETT, 1.3 WB	A500/A2000	CHANGE TO -03	
318029-02	IC 8520R4 1MHZ CIA		SUB TO -03 (2MHZ)	
326114-01	CASE, BOTTOM C64		NLA	
327136-01	INSULATION SHEET A1000		NLA	
328191-01	IC 6570-33 A1000		SUB TO -02	
380042-01	KIT, PC10-1 HD MOUNTING		NLA	
380788-06	IC BIOS PC-EMUL		\$7.70	ADD
380787-01	IC FDC 9268		SUB TO 312710-01	
380788-04	IC BIOS PC-EMUL		SUB TO 380788-06	
390306-01	IC 8742 KB CNTRL PC40-III		SUB TO 390341-01	
602070-05	IC RGBI MB7051G3 1902/1080		SUB TO 602073-85	
602073-85	IC MB7112E RGBI 1902/1080		\$8.25	ADD
602191-03	CAP ELECT 2200UF 1403		SUB TO 602190-12	
903508-04	CORD POWER		SUB TO 252164-01	

[REPEAT OF 27/2-3.1]

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## 28/2-2.1 A2091 SPARE PARTS LIST.

COMMODORE PARTS DEPARTMENT NOW HAVE THE FOLLOWING PARTS IN STOCK.

PART NUMBER	DESCRIPTION	PRODUCT	RETURN CREDIT	DEALER BILLING
314674-01	SYSTEM SCHEMATICS	A2091		\$16.50
363227-02	USER MANUAL (ENG.)	A2091		\$ 4.00
317806-01	DISK ASSY CNTRL PROGS/INSTALL	A2091		\$11.00
313440-01	HARD DRIVE 40MB SCSI (QUANTUM)	A2091	\$100.00	\$575.00
312769-01	PCB ASSY (REV 4)	A2091	\$165.00	\$280.00
390333-03	IC 16L8A RAM CNTRL	A2091		\$ 5.50
390563-02	IC DMAC	A2091		\$78.50
390206-01	IC WD33C93	A2091		\$44.00
390509-01	IC EPROM ODD DRIVER	A2091		\$ 9.90
390508-01	IC EPROM EVEN DRIVER	A2091		\$ 9.90

END 28/2.

**4****CBM**

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- 28/4-0.0    **INDEX - CBM SECTION TECHTOPICS ISSUE 28.**  
 28/4-1.1    **WARRANTY CLAIMS FOR C64 A-TYPE PCB'S.**  
 28/4-2.1    **WARRANTY CLAIMS FOR DISCONTINUED COMMODORE PRODUCTS.**
- 

**28/4-1.1    WARRANTY CLAIMS FOR C64 A-TYPE PCB'S**

WHEN RETURNING A C64 A-TYPE PCB, PART NUMBER 250407-04, AS A WARRANTY CLAIM, YOU MUST INCLUDE A COPY OF THE CUSTOMERS BILL OF SALE.

IF IT IS A 90 DAY PARTS WARRANTY, YOU MUST PROVIDE US WITH A COPY OF YOUR PURCHASE INVOICE.

SHOULD THERE BE NO PAPER WORK SENT WITH THE PCB, THE PCB WILL BE RETURNED TO YOU AND NO CREDIT ISSUED.

[REPEAT OF 27/4-3.1]

**28/4-2.1    WARRANTY CLAIMS FOR DISCONTINUED COMMODORE PRODUCTS.**

EFFECTIVE IMMEDIATELY, ALL WARRANTY CLAIMS FOR DISCONTINUED COMMODORE PRODUCTS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING, WILL REQUIRE A COPY OF THE CUSTOMER BILL OF SALE TO BE RETURNED WITH THE WARRANTY CLAIM PAPERWORK. THE SERIAL NUMBER OF THE UNIT MUST BE INCLUDED ON THE NARDA FORM. CLAIMS WITHOUT THIS INFORMATION WILL BE REJECTED.

ANY QUESTIONS SHOULD BE DIRECTED TO THE TECHNICAL HOTLINE.

+4	1581	2002	1802	MPS802	1526
C16	C128	1701	1902	MPS803	
VIC 20	C128D	1702	1902A	DPS1101	
C64	1070	1702T	1084	1515	
1541	1080	CM141	MPS1000	1520	
1571	1080A	C1802	MPS801	1525	

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**END 28/4.**

# JULY - SEPTEMBER 1989

## ISSUE 26



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- 26/1-1.1 SERVICE TRAINING SCHEDULE, OCTOBER - DECEMBER 1989.
- 26/1-2.1 IMPORTANT WARRANTY POLICY INFORMATION.

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- 26/2-2.1 NEW MAJOR COMPONENT KITS AVAILABLE IN OCTOBER.
- 26/2-3.1 NEW AMIGA IC REPAIR KIT 314067-03 REPLACES -02 KIT.
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- 26/3-2.1 A2000 PCB FIELD UPGRADE TO REV 4.5.
- 26/3-3.1 A2620 COPROCESSOR ROM UPGRADE.
- 26/3-4.1 A2000 CR REV 6.0 PCB EXPANSION BUS PROBLEMS.
- 26/3-5.1 A2000 POWER SUPPLY - 12 VOLT LOAD CAN EFFECT VIDEO.
- 26/3-6.1 A590 SERVICE MANUAL CBM PN# 314899-01 RELEASE.
- 26/3-6.2 ENCLOSURE: A590 SERVICE MANUAL.
- 26/3-7.1 A500 REVISION 6A/7 SCHEMATICS CBM PN# 314981-02 RELEASE.
- 26/3-7.2 ENCLOSURE: A500 REV 6A/7 SCHEMATICS.
- 26/3-8.1 A2000 REVISION 6 SCHEMATICS CBM PN# 314135-02 RELEASE.
- 26/3-8.2 ENCLOSURE: A2000 REV 6 SCHEMATICS.

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- 26/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 26.
- 26/4-1.1 C64/A PCB# 250407 WILL HAVE NO DUD VALUE AS OF 10/01/89.
- 26/4-2.1 1581 FDD - EXTENDED WARRANTY NO LONGER IN EFFECT.
- 26/4-3.1 1230 PRINTER SERVICE MANUAL CBM PN# 314998-01 RELEASE.
- 26/4-3.2 ENCLOSURE: 1230 PRINTER SERVICE MANUAL.

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- 26/5-2.1 PC30/40-III VGA VIDEO PROBLEM IN 8MHZ MODE.
- 26/5-3.1 PC40-III BIOS V2.01 UPGRADE ROM RELEASE.
- 26/5-4.1 PC40-III DIAGNOSTIC KIT - CONTENTS CHANGE.
- 26/5-5.1 PC40-III PCB EXCHANGE KIT.
- 26/5-6.1 1402 MONITOR SERVICE MANUAL CBM PN# 602249-99 RELEASE.
- 26/5-6.2 ENCLOSURE: 1402 MONITOR SERVICE MANUAL.
- 26/5-7.1 1403 MONITOR SERVICE MANUAL CBM PN# 314882-01 RELEASE.
- 26/5-7.2 ENCLOSURE: 1403 MONITOR SERVICE MANUAL.

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26/1-1.1 SERVICE TRAINING SCHEDULE, OCTOBER - DECEMBER 1989.  
 1989 TRAINING SCHEDULE, OCTOBER THUR DECEMBER.  
 PLEASE CONTACT JOHN DI MEO FOR MORE INFORMATION.

MONTH	DATE	TRAINING DAYS	PRODUCTS	STATUS
OCTOBER	11-13	WED-FRI	AMIGA OPTS	OPEN
OCTOBER	18-20	WED-FRI	PC	OPEN
OCTOBER	23-27	MON-FRI	MONITORS	OPEN
NOVEMBER	6-10	MON-FRI	AMIGA	OPEN
NOVEMBER	13-17	MON-FRI	MONITORS	OPEN
NOVEMBER	27-29	MON-WED	AMIGA OPTS	OPEN
DECEMBER	4-8	MON-FRI	AMIGA	OPEN
DECEMBER	11-15	MON-FRI	MONITORS	OPEN

26/1-2.1 IMPORTANT WARRANTY POLICY INFORMATION.

ALL SERVICE CENTERS AUTHORIZED BY COMMODORE FOR WARRANTY REPAIRS MUST COMPLY WITH COMMODORE'S OFFICIAL PRODUCT WARRANTY POLICIES.

AUTHORIZED SERVICE CENTERS ARE REQUIRED TO SERVICE ANY COMMODORE PRODUCT, WITHIN THE PRODUCT LINES FOR WHICH THEY ARE AUTHORIZED, PROVIDED THE CUSTOMER CAN PRODUCE A VALID PROOF OF WARRANTY, REGARDLESS OF PLACE OF PURCHASE.

REFUSAL TO SERVICE A VALID IN-WARRANTY COMMODORE PRODUCT MAY RESULT IN CANCELLATION OF YOUR SERVICE CONTRACT.

END 26/1.

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- 26/2-0.0 INDEX - PARTS SECTION TECHTOPICS 24.  
26/2-1.1 NEW SERVICE PARTS PRICE BOOK - SEPTEMBER 1, 1989.  
26/2-2.1 NEW MAJOR COMPONENT KITS AVAILABLE IN OCTOBER.  
26/2-3.1 NEW AMIGA IC REPAIR KIT 314067-03 REPLACES -02 KIT.  
26/2-4.1 ERRATUS #1 - PARTS PRICE BOOK ISSUED SEPT. 1, 1989.
- 

- 26/2-1.1 NEW SERVICE PARTS PRICE BOOK - SEPTEMBER 1, 1989.

THE NEW EDITION OF THE SERVICE PARTS PRICE BOOK IS BEING MAILED TO ALL COMMODORE AUTHORIZED SERVICE CENTERS THIS WEEK.

THE EFFECTIVE STARTING DATE FOR THIS PARTS PRICE BOOK IS SEPTEMBER 1, 1989. DEALER BILLING PRICES ARE NOT INCREASED, SOME SELECTED PCB CHARGES AND CREDITS HAVE BEEN ADJUSTED.

- 26/2-2.1 NEW MAJOR COMPONENT KITS AVAILABLE IN OCTOBER.

THREE NEW "LEVEL 1" REPAIR KITS WILL BE AVAILABLE IN OCTOBER FROM THE PARTS DEPARTMENT. IN ADDITION TO THE DOLLAR SAVINGS SERVICE CENTERS RECIEVE BY PURCHASING THESE KITS, BONUS POINTS TOWARD SERVICE TRAINING ARE INCLUDED.

THE THREE NEW "LEVEL 1" KITS ARE:

314032-10	A500 LEVEL 1 REPAIR KIT	\$800.00
314032-20	A2000/2000HD/A2500 LEVEL 1 REPAIR KIT	\$2,666.00
314032-30	PC10/20/40-III/COLT LEVEL 1 REPAIR KIT	\$1,266.00

KIT CONTENTS AND DETAILS ARE AS FOLLOWS:

---

314032-10 A500 LEVEL 1 REPAIR KIT DEALER BILLING \$800.00

PURCHASE OF THE LEVEL 1 A500 REPAIR KIT INCLUDES 120 POINTS TOWARD SERVICE TRAINING.



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26/2-2.1 NEW MAJOR COMPONENT KITS AVAILABLE IN OCTOBER. (CONT)

PART NUMBER	DESCRIPTION	DEALER BILLING	RETURN CREDIT	COST
312502-01	KEYBOARD	\$71.50		\$71.50
312006-01	PCB A500 REV 6A/7	\$385.00	\$225.00	\$160.00
314067-03	IC REPAIR KIT	\$180.00***		\$180.00
327124-02	MOUSE	\$49.50		\$49.50
312503-01	POWER SUPPLY	\$71.50		\$71.50
312554-01	3.5 DRIVE ASSY	\$110.00		\$110.00
327207-02	CABLE FDD POWER	\$3.30		\$3.30
TOTAL		\$870.80	\$225.00	\$645.80
KIT PRICE		\$800.00	\$225.00	\$575.80
A500 LEVEL 1 KIT SAVINGS		\$ 70.80		
*** SAVINGS IN IC KIT		\$75.35	SEE BULLETIN 26/2-3.1	
TOTAL SAVINGS		\$146.15		

314032-20 A2000 LEVEL 1 REPAIR KIT DEALER BILLING \$2,666.00

PURCHASE OF THE A2000 LEVEL 1 REPAIR KIT INCLUDES  
400 POINTS TOWARD SERVICE TRAINING.

PART NUMBER	DESCRIPTION	DEALER BILLING	RETURN CREDIT	COST
311979-02	A2090A HDC PCB	\$280.00	\$165.00	\$115.00
312716-02	KEYBOARD	\$82.50		\$82.50
312720-05	A2000 REV 6 PCB	\$920.00	\$625.00	\$295.00
312828-01	A2620 PCB 2MB	\$1200.00	\$800.00	\$400.00
314067-03	IC REPAIR KIT	\$180.00***		\$180.00
327124-03	MOUSE	\$49.50		\$49.50
380708-02	POWER SUPPLY	\$99.00		\$99.00
380752-01	3.5 DRIVE ASSY	\$130.00		\$130.00
TOTAL		\$2941.00	\$1590.00	\$1351.00
KIT PRICE		\$2666.00	\$1590.00	\$1076.00
A2000 LEVEL 1 KIT SAVINGS		\$275.00		
*** SAVINGS IN IC KIT		\$75.35	SEE BULLETIN 26/2-3.1	
TOTAL SAVINGS		\$350.35		

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## 26/2-2.1 NEW MAJOR COMPONENT KITS AVAILABLE IN OCTOBER. (CONT)

314032-30 PC LEVEL 1 REPAIR KIT DEALER BILLING \$1266.00

PURCHASE OF PC LEVEL 1 REPAIR KIT INCLUDES  
190 POINTS TOWARD SERVICE TRAINING.

PART NUMBER	DESCRIPTION	DEALER BILLING	RETURN CREDIT	COST
PC10/20/COLT TYPES				
312702-02	KEYBOARD PC10/20	\$88.00		\$80.00
312625-01	PCB ASSY PC10/20	\$192.50	\$75.00	\$117.50
312637-02	POWER SUPPLY	\$93.50		\$93.50
313005-01	KEYBOARD COLT	\$77.00		\$77.00
380111-01	5.25 DRIVE ASSY	\$109.00		\$109.00
SUB TOTAL A		\$560.00	\$75.00	\$485.00
PC40-III				
312709-01	KEYBOARD	\$88.00		\$88.00
313055-01	PCB ASSY PC40-III	\$467.50	\$200.00	\$267.50
380825-01	5.25 DRIVE ASSY	\$145.00		\$145.00
390269-02	POWER SUPPLY	\$132.00		\$132.00
SUB TOTAL B		\$832.50	\$200.00	\$632.50
TOTAL (A + B)		\$1392.50	\$275.00	\$1117.50
KIT PRICE		\$1266.00	\$275.00	\$991.00
PC LEVEL 1 KIT SAVINGS		\$126.50		

## 26/32-3.1 NEW AMIGA IC REPAIR KIT 314067-03 REPLACES -02 KIT.

THE AMIGA IC REPAIR KIT HAS BEEN UPGRADED TO INCLUDE  
THE NEW 8372 AGNUS HI RES IC AND A SECOND 8520 IC CHIP.THE NEW AMIGA IC REPAIR KIT PN# 314067-03 WILL REPLACE  
THE EARLIER VERSION KIT ( PN# 314067-02 ) WHICH IS NO  
LONGER AVAILABLE.

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26/32-3.1 NEW AMIGA IC REPAIR KIT 314067-03 REPLACES -02 KIT. (CONT)

314067-03 AMIGA IC REPAIR KIT DEALER BILLING \$180.00  
CONTAINS:

PART NUMBER	DESCRIPTION	QUANTITY	DEALER BILLING
318070-01	8370 FAT AGNUS	1	\$49.50
318069-02	8372 AGNUS HI RES	1	\$78.50
252127-02	8364 PAULA	1	\$46.20
252126-02	8362 DENISE	1	\$43.20
318072-01	5719 GARY	1	\$11.00
318075-02	BUSTER	1	\$8.25
318029-03	8520 2MHZ CIA	2	\$18.70 (9.35 X 2)
TOTAL			\$255.35
AMIGA IC REPAIR KIT PRICE			\$180.00
SAVINGS			\$75.35

26/2-4.1 ERRATUS #1 PARTS PRICE BOOK ISSUED SEPT. 1, 1989.

PLEASE MAKE THE FOLLOWING ADDITIONS AND CORRECTIONS  
TO THE NUMERIC SECTION OF THE RED SERVICE PARTS  
PRICE BOOK, ISSUED SEPTEMBER 1, 1989.

ON PAGE 3:

314135-02	A2000 REV 6 SCHEMATICS	CHANGE FROM -01
314879-02	A500/A2000 SYSTEST V2.4.3	CHANGE FROM -01
314966-03	A500/A2000 V2.0 ALGN PROG	CHANGE FROM -02(2 PLACES)
314967-03	AMIGA ALIGN INSTRUCT V2.0	CHANGE FROM -02(2 PLACES)
314968-02	AMIGA ALIGN DISK DIGILOG	CHANGE FROM -01(2 PLACES)
314067-03	KIT AMIGA IC REPAIR	CHANGE FROM -02 AND, CHANGE COST TO \$180.00.
318069-02	IC 8372 AGNUS HR	ADD TO AMIGA IC KIT.
318029-03	IC 8520	CHANGE FROM -02 AND NOTE QUANTITY IS NOW TWO.
314032-10	KIT A500 LEVEL 1	ADD TO AMIGA KITS, DB IS \$800.00.
314032-20	KIT A2000 LEVEL 1	ADD TO AMIGA KITS, DB IS \$2,666.00.

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PAGE 5

26/2-4.1 ERRATUS #1 PARTS PRICE BOOK ISSUED SEPT. 1, 1989. (CONT)

ON PAGE 4:

314998-01 MPS1230 SERVICE MANUAL      ADD TO CBM STARTUP KIT,  
DB IS \$16.50, SR IS \$27.50.

ON PAGE 7:

314984-01 KIT PC10/COLT CPU DIAG      CORRECT DB IS \$137.50.  
314032-30 KIT PC LEVEL 1      ADD TO PC KITS,  
DB IS \$1,266.00.

ON PAGE 9:

250448-01 PCB ASSY 1541B      REMOVE SUB:; CREDIT IS  
\$40.00, DB IS \$88.00.

ON PAGE 10:

250785-02 CASE TOP ASSY      SUB: TO 252110-01

ON PAGE 11:

251968-02 IC ROM 1541B      SUB: TO -03, ADD 1541B  
TO PRODUCT CODE ON -03.  
252016-01 SHIELD BOTTOM      C128      CHANGE DESCRIPTION FROM  
CASE TO SHIELD.

ON PAGE 12:

252110-01 CASE TOP      CHANGE PRODUCT CODE  
TO C64C-E.

ON PAGE 14:

312589-01 INSULATION SHEET A500      DB IS 3.30, SR IS 5.50,  
REMOVE INCORRECT SUB:.  
312595-01 COVER EXPANSION A500      INCORRECT DESCRIPTION.  
312598-01      INVALID PART NUMBER,  
REMOVE, CORRECT NUMBER  
IS 312595-01.

ON PAGE 23:

318029-03 IC 8520      SUB: FROM -02.

ON PAGE 30:

390304-03 IC WD37C65B FDC PC40-III/COLT286 ADD DB IS \$44.00,  
SR IS \$73.30.

PLEASE NOTE, THESE CHANGES SHOULD ALSO BE MADE TO THE ALPHA  
SECTION AND UNITS SECTION.

END 26/2.

## 4

## CBM

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SECTION 4 - CBM

PAGE 1

26/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 26.  
26/4-1.1 C64/A PCB# 250407 WILL HAVE NO DUD VALUE AS OF 10/01/89.  
26/4-2.1 1581 FDD - EXTENDED WARRANTY NO LONGER IN EFFECT.  
26/4-3.1 1230 PRINTER SERVICE MANUAL CBM PN# 314998-01 RELEASE.  
26/4-3.2 ENCLOSURE: 1230 PRINTER SERVICE MANUAL.

26/4-1.1 C64/A PCB# 250407 WILL HAVE NO DUD VALUE AS OF 10/01/89.

THE NEW BILLING PRICE FOR THE C64/A PCB IS \$42.50.  
THERE WILL BE NO DUD VALUE ISSUED AFTER OCTOBER 1,  
1989.

26/4-2.1 1581 FDD - EXTENDED WARRANTY NO LONGER IN EFFECT.

TECHTOPICS ISSUE 18, NOVEMBER 1987, DESCRIBED A FIX FOR  
1581 FLOPPY DISK DRIVES WHICH EXHIBITED DATA CORRUPTION  
PROBLEMS. THIS FIX INVOLVED REPLACING THE WESTERN DIGITAL  
FLOPPY DISK CONTROLLER IC (WD1770) AT LOCATION U4, WITH  
A WD1772 FDC (PN#310651-02). SEE CBM SECTION, BULLETIN  
4-1.1 IN ISSUE 18 FOR DETAILS.

COMMODORE SERVICE HAS OFFERED AN EXTENDED WARRANTY TO  
CUSTOMERS WITH 1581 UNITS WHICH EXHIBIT DATA CORRUPTION  
PROBLEMS. ONLY A LIMITED NUMBER OF UNITS WERE PRODUCED  
USING THE WD1770 TYPE FDC. IN ADDITION, DATA CORRUPTION  
ONLY OCCURRED WHEN USING CERTAIN TYPES OF THIRD PARTY  
APPLICATION SOFTWARE.

EFFECTIVE OCTOBER 1, 1989, THE EXTENDED WARRANTY, WHICH  
WAS AVAILABLE UPON REQUEST, WILL NOT LONGER BE APPROVED.

26/4-3.1 1230 PRINTER SERVICE MANUAL CBM PN# 314998-01 RELEASE.

MAILED WITH TECHTOPICS ISSUE 26, FOR ALL AUTHORIZED  
SERVICE CENTERS, IS THE 1230 PRINTER SERVICE MANUAL.

26/4-3.2 ENCLOSURE: 1230 PRINTER SERVICE MANUAL.

ENCLOSED WITH TECHTOPICS ISSUE 26, #314998-01 1230 PRINTER  
SERVICE MANUAL.

END 26/4.

# APRIL - JUNE 1989 ISSUE 25



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ISSUE 25 - APR-MAY-JUN 89

SECTION 1

**1** INFO

- 25/1-0.0 INDEX - INFO SECTION TECHTOPICS 25 (APR-MAY-JUNE).
- 25/1-1.1 SERVICE TRAINING SCHEDULE FOR 1989, APRIL THUR JUNE.
- 25/1-2.1 IMPORTANT CHANGE - MINIMUM PARTS ORDER OF \$50.00, ELIMINATED.
- 25/1-3.1 EXTENDED C-TOC SERVICES - PAST BULLETINS ACCESSIBLE BY MODEL.
- 25/1-4.1 SERVICE TRAINING SCHEDULE FOR 1989, JULY THUR DECEMBER.
- 25/1-5.1 POINTS FOR PARTS PROGRAM, STARTS JULY 1, 1989.
- 25/1-6.1 RETURN OF DEFECTIVE PARTS TO PARTS DEPOT.
- 25/1-7.1 WARRANTY EXTENSIONS FOR CUSTOMER UNITS - NEW PROCEDURES.
- 25/1-8.1 MCGRAW-HILL CBM PRODUCTS WARRANTYS ARE VALID AND TO BE HONORED.
- 25/1-9.1 PAST DUE ACCOUNTS RESULTS IN CANCELLED PARTS ORDERS.

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SECTION 2

**2** PARTS

- 25/2-0.0 INDEX - PARTS SECTION TECHTOPICS 25 (APR-MAY-JUN)
- 25/2-1.1 UPDATE #4 FOR YELLOW PARTS PRICE BOOK.
- 25/2-2.1 PARTS LIST BY UNIT - NEW ON-LINE FEATURE IN PARTS SECTION.
- 25/2-3.1 NEW "FATTER" AGNUS 8372 - W/ 1MB CHIP RAM AVAILABLE SOON.
- 25/2-4.1 A2000 REVISION 6 PCB PART NUMBER.

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**3** AMIGA

- 25/3-0.0 INDEX - AMIGA SECTION TECHTOPICS ISSUE 25 (APR-MAY-JUN).
- 25/3-1.1 A2000 PCB FIELD UPGRADE TO REVISION LEVEL 4.5.
- 25/3-2.1 INSTALLATION OF NEW "FATTER" AGNUS IN THE AMIGA 2000.
- 25/3-3.1 A2000 GURU MESSAGE ON POWER UP W/ REV 6 PCB.
- 25/3-4.1 A2286 REV 6.1 TO REV 8.1 BOARD EXCHANGE.

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SECTION 4

**4** CBM

- 25/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 25 (APR-MAY-JUN).
- 25/4-1.1 C64C - E TYPE PCB ASSEMBLIES VIDEO PROBLEMS.
- 25/4-2.1 1541B - RESISTOR CHANGE, ALPS OR NEWTRONICS TYPE DRIVE.
- 25/4-3.1 R/W HYBRID IC, PN# 251853 NOT INTERCHANGABLE FOR 1541B/1571.

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SECTION 5

**5** PC

- 25/5-0.0 INDEX - PC SECTION TECHTOPICS ISSUE 25 (APR-MAY-JUN).
- 25/5-1.1 PC40-III VIDEO REPAIR TIP: IC/SOCKET CONTACT PROBLEMS.



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## INFO

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 25/1-1.1 SERVICE TRAINING SCHEDULE FOR 1989, APRIL THUR JUNE.  
 25/1-2.1 IMPORTANT CHANGE - MINIMUM PARTS ORDER OF \$50.00, ELIMINATED.  
 25/1-3.1 EXTENDED C-TOC SERVICES - PAST BULLETINS ACCESSIBLE BY MODEL.  
 25/1-4.1 SERVICE TRAINING SCHEDULE FOR 1989, JULY THUR DECEMBER.  
 25/1-5.1 POINTS FOR PARTS PROGRAM, STARTS JULY 1, 1989.  
 25/1-6.1 RETURN OF DEFECTIVE PARTS TO PARTS DEPOT.  
 25/1-7.1 WARRANTY EXTENSIONS FOR CUSTOMER UNITS - NEW PROCEDURES.  
 25/1-8.1 MCGRAW-HILL CBM PRODUCTS WARRANTYS ARE VALID AND TO BE HONORED.  
 25/1-9.1 PAST DUE ACCOUNTS RESULTS IN CANCELLED PARTS ORDERS.

25/1-1.1 SERVICE TRAINING SCHEDULE FOR 1989, APRIL THUR JUNE.

COMMODORE SERVICE WILL BE CONDUCTING TRAINING CLASSES THROUGHOUT 1989. A OUTLINE WAS INCLUDED WITH MAILING OF ISSUE 23 DETAILING THE COURSES.

THE 1989 TRAINING SCHEDULE, APRIL THUR JUNE.

MONTH	DATE	TRAINING DAYS	PRODUCTS	STATUS
APR	4-7	TUES-FRI	CBM	CLOSED
APR	10-14	MON-FRI	MONITORS	CLOSED
MAY	8-12	MON-FRI	AMIGA	CLOSED
MAY	15-19	MON-FRI	MONITORS	CLOSED
JUN	7-9	WED-FRI	PC	CLOSED
JUN	12-16	MON-FRI	MONITORS	CLOSED

25/1-2.1 IMPORTANT CHANGE - MINIMUM PARTS ORDER OF \$50.00, ELIMINATED.

EFFECTIVE APRIL 3, THE REQUIREMENT THAT SERVICE PARTS ORDERS EXCEED \$50.00 WILL BE ELIMINATED. AUTHORIZED SERVICE CENTERS MAY ORDER PARTS WITH NO MINIMUM DOLLAR AMOUNT, SUBJECT TO THE FOLLOWING PROVISIONS.

- 1) PARTS ORDERS OF LESS THAN \$50.00 WILL BE SUBJECT TO A \$5.00 SURCHARGE AND THE SHIPPING CHARGES WILL BE BILLED TO THE SERVICE CENTER.
- 2) ON PARTS ORDERS BETWEEN \$50.00 AND \$99.99, THE SHIPPING CHARGES WILL BE BILLED TO THE SERVICE CENTER.
- 3) ON PARTS ORDERS WHICH EXCEED \$100.00 NO CHANGES IN POLICY HAVE BEEN MADE.

[ NOTE: THIS BULLETIN WAS APPENDED TO THE TECHTOPICS ISSUE 24 MAILING, THE FIRST WEEK OF APRIL. ]

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SECTION 1 - INFO

PAGE 2

## 25/1-3.1 EXTENDED C-TOC SERVICES - PAST BULLETINS ACCESSIBLE BY MODEL.

STARTING WITH ON-LINE ISSUE 25, PAST TECHTOPICS BULLETINS CAN BE ACCESSED BY MODEL NUMBER, UNDER PRODUCT LINE ( AMIGA, CBM, PC ).

NEW MENUS ALLOW USERS DIRECT ACCESS TO ANY BULLETINS ISSUED STARTING FROM TECHTOPICS ISSUE 18 ( NOVEMBER 1987 ) THROUGH ISSUE 24 ( JANUARY - MARCH 1989 ). WITH EACH NEW ISSUE BULLETINS FROM THE PREVIOUS ISSUE WILL BE ADDED TO THE HISTORY FILES.

ONLY REPAIR BULLETINS ARE LISTED, INFORMATION REGARDING RELEASES OF NEW TESTS, SERVICE MANUALS OR OTHER ENCLOSURES HAVE BEEN REMOVED IN ORDER TO KEEP THE HISTORY FILES AS CONCISE AS POSSIBLE.

IN ADDITION TO THE UNIT REFERENCES, TWO NEW OPTIONS APPEAR ON THE INFO SECTION MENU. THESE ARE POLICY INFORMATION, WHICH LISTS COMMODORE SERVICE BULLETINS REGARDING POLICY, AND GENERAL INFORMATION, WHICH LIST CURRENT WARRANTY RATES, SERVICE PHONE NUMBERS, HOW TO FILL OUT NARDA FORMS, AND OTHER IMPORTANT SERVICE INFORMATION.

UNDER THE PARTS MENU, OPTIONS NOW ALLOW USERS TO SELECT COMMODORE STOCKED PARTS LISTS BY UNIT. NOTE THAT THE LISTS DO NOT CONTAIN PRICES, AVAILABILITY, OR SUBSTITUTIONS. CONSULT YOUR CURRENT ON-LINE PARTS SECTION AND THE CURRENT PARTS PRICE BOOK FOR COST INFORMATION. NOTE, ON THE PARTS LIST, AN ASTERISK ( \* ) INDICATES THE PARTS ARE USED IN OTHER UNITS AS WELL.

## 25/1-4.1 SERVICE TRAINING SCHEDULE FOR 1989, JULY THUR DECEMBER.

THE NEW SERVICE TRAINING SCHEDULE AND COURSE OUTLINE IS CURRENTLY BEING MAILED TO ALL AUTHORIZED SERVICE CENTERS. CONTACT JOHN DIMEO FOR MORE INFORMATION.

MONTH	DATE	TRAINING DAY	PRODUCT	STATUS
JULY	10-14	MON-FRI	AMIGA	CLOSED
JULY	17-24	MON-FRI	MONITORS	OPEN
AUGUST	2-4	WED-FRI	AMIGA OPTIONS	OPEN
AUGUST	16-18	WED-FRI	PC	OPEN
AUGUST	21-25	MON-FRI	MONITORS	OPEN
SEPTEMBER	11-15	MON-FRI	AMIGA	OPEN
SEPTEMBER	18-22	MON-FRI	MONITORS	OPEN
OCTOBER	11-13	WED-FRI	AMIGA OPTIONS	OPEN
OCTOBER	18-20	WED-FRI	PC	OPEN
OCTOBER	23-27	MON-FRI	MONITORS	OPEN
NOVEMBER	6-10	MON-FRI	AMIGA	OPEN
NOVEMBER	13-17	MON-FRI	MONITORS	OPEN
NOVEMBER	27-29	MON-WED	AMIGA OPTIONS	OPEN
DECEMBER	4-8	MON-FRI	AMIGA	OPEN
DECEMBER	11-15	MON-FRI	MONITORS	OPEN

## 25/1-5.1 POINTS FOR PARTS PROGRAM, STARTS JULY 1, 1989.

THE POINTS FOR PARTS PROGRAM ALLOWS AUTHORIZED SERVICE CENTERS TO BUILD POINTS BASED UPON GROSS PARTS ORDERS. THESE POINTS MAY BE USED TO PAY FOR COMMODORE SERVICE TRAINING.

- 1) EACH MONTH POINT CERTIFICATES WILL BE MAILED TO ALL SERVICE CENTERS BASED ON GROSS PARTS SALES FOR THE PRIOR MONTH.
- 2) 150 POINTS WILL BE ISSUED FOR EACH \$1000.00 IN GROSS PARTS ORDERS.
- 3) POINT CERTIFICATES WILL BE ISSUED AT 50 POINT MINIMUM OR 100 POINT MAXIMUM VALUES.
- 4) IF LESS THAN 50 POINTS ARE EARNED FOR A CERTAIN MONTH THEY WILL BE CARRIED OVER AND CERTIFICATE WILL BE ISSUED WHEN TOTAL EARNED POINTS REACHES 50.
- 5) POINT CERTIFICATES MUST BE SUBMITTED ALONG WITH THE SERVICE TRAINING CONFIRMATION FORM.
- 6) POINT CERTIFICATES ISSUED FROM 7-1-89 THUR 12-31-89 MUST BE USED BEFORE 3-1-90 OR THEY BECOME INVAILD.
- 7) POINT CERTIFICATES WILL BE ISSUED FOR PARTS ORDERED THROUGH THE PARTS DEPARTMENT AND BILLED TO ACTIVE PARTS ACCOUNT NUMBERS ONLY.

## 25/1-6.1 RETURN OF DEFECTIVE PARTS TO PARTS DEPOT.

A LARGE NUMBER OF PARTS, RETURNED TO THE PARTS DEPOT AS DEFECTIVE, HAVE BEEN FOUND TO BE FULLY FUNCTIONAL AFTER BEING RE-TESTED BY IN-HOUSE TECHNICIANS.

BECAUSE OF THE INCREASED COST TO THE SERVICE DEPARTMENT DUE TO INCORRECT ANALYSIS BY FIELD SERVICE TECHNICIANS, NEW PROCEDURES FOR RETURNING PARTS FOR CREDIT ARE BEING IMPLEMENTED.

THESE PROCEDURES WILL REQUIRE AUTHORIZED SERVICE CENTERS TO COMPLETE A FORM AND ATTACH IT TO THE SUB-ASSEMBLY BEING RETURNED. IN ADDITION, PACKING REQUIREMENTS FOR DISK DRIVES AND PCB ASSEMBLIES WILL BE EXPLICITLY DEFINED AND PACKING MATERIALS WILL BE PROVIDED BY THE PARTS DEPARTMENT.

FURTHER DETAILS WILL BE ANNOUNCED IN THE NEAR FUTURE.

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SECTION 1 - INFO

PAGE 4

25/1-7.1 WARRANTY EXTENSIONS FOR CUSTOMER UNITS - NEW PROCEDURES.

EFFECTIVE JULY 1, 1989 APPROVALS FOR WARRANTY EXTENSIONS ON COMMODORE PRODUCTS WILL BE GRANTED VIA THE 800 TECH HOT LINE INSTEAD OF BY WRITTEN AUTHORIZATION.

CUSTOMERS REQUESTING A WARRANTY EXTENSION WILL BE INSTRUCTED TO TAKE THE UNIT TO AN AUTHORIZED SERVICE CENTER, WHO IN TURN, MUST CALL THE 800 SERVICE HOT LINE TO OBTAIN APPROVAL FOR THE

WARRANTY EXTENSION. DO NOT RELEASE THE 800 TECH HOT LINE TELEPHONE NUMBER TO THE CUSTOMER!

THE COMMODORE SERVICE TECHNICIAN WILL MAKE THE DECISION BASED ON THE CONDITION OF THE UNIT AND CIRCUMSTANCES AS DESCRIBED BY THE AUTHORIZED SERVICE CENTER TECHNICIAN. A WARRANTY EXTENSION APPROVAL NUMBER WILL BE ISSUED, AND THIS NUMBER MUST BE INDICATED ON THE NARDA FORM WHEN IT IS RETURNED TO COMMODORE FOR LABOR AND PARTS REIMBURSHMENT.

THIS NEW PROCEDURE IS BEING IMPLEMENTED TO INSURE THAT QUALIFIED TECHNICIANS DETERMINE THE EXACT NATURE OF THE PROBLEM AND ALSO TO REDUCE PAPER WORK AND TURN-AROUND TIME.

25/1-8.1 MCGRAW HILL CBM PRODUCTS WARRANTYS ARE VALID AND TO BE HONORED.

A SPECIAL MARKETING PROMOTION FROM MCGRAW HILL CONTINUING EDUCATION CENTER AND COMMODORE OFFERS A WARRANTY ON CBM PRODUCTS. THE FORM (BF 970 (711)), IS TO BE CONSIDERED VALID AND CAN BE USED BY THE CUSTOMER IN PLACE OF A PROOF OF PURCHASE.

25/1-9.1 PAST DUE ACCOUNTS RESULTS IN CANCELLED PARTS ORDERS.

ALL SPARE PARTS ORDERS YOU MAY HAVE PENDING WILL BE CANCELLED IF YOUR ACCOUNT IS OVER DUE OR THERE IS A PROBLEM WITH YOUR CREDIT.

YOU WILL BE ADVISED IF YOUR ACCOUNT STATUS HAS LEAD TO THE CANCELLATION OF YOUR PARTS ORDERS.

IMPORTANT - KEEP YOUR ACCOUNT CURRENT.

END 24/1.

## 2

## PARTS

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PAGE 1

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- 25/2-0.0 INDEX - PARTS SECTION TECHTOPICS 25 (APR-MAY-JUN)
- 25/2-1.1 UPDATE #4 FOR YELLOW PARTS PRICE BOOK.
- 25/2-2.1 PARTS LIST BY UNIT - NEW ON-LINE FEATURE IN PARTS SECTION.
- 25/2-3.1 NEW "FATTER" AGNUS 8372 - W/ 1MB CHIP RAM AVAILABLE SOON.
- 25/2-4.1 A2000 REVISION 6 PCB PART NUMBER.
- 

- 25/2-1.1 UPDATE #4 FOR YELLOW PARTS PRICE BOOK.

PART NUMBER	DESCRIPTION	UNIT	RETURN CREDIT	DEALER BILLING	SUGGESTED RETAIL
1540001-03	1541 PCB ASSY	1541			\$48.00
250408-01	SX64 CPU PCB ASSY	SX64			\$64.50
250409-01	SX64 I/O PCB ASSY	SX64			\$64.50
250410-01	SX64 FDC PCB ASSY	SX64			\$64.50
250443-01	C16 PCB ASSY	C16			\$42.50
310163-01	PLUS 4 PCB ASSY	+4			\$42.50
325519-03	ALPS DRIVE ASSY	SX64			\$48.00
601201-79	1526 PCB ASSY	1526/802			\$64.50

- 25/2-2.1 PARTS LIST BY UNIT - NEW ON-LINE FEATURE IN PARTS SECTION.

A NEW SECOND MENU NOW APPEARS WHEN YOU SELECT THE PARTS SECTION ( 2 ) ON THE C-TOC MAIN MENU. THIS NEW OPTION ALLOWS USERS TO SELECT COMPUTERS, DISK DRIVES, ACCESSORIES, MONITORS OR PRINTERS. A THIRD MENU THEN APPEARS LISTING THE UNIT PARTS LIST AVAILABLE UNDER PRODUCT COLUMNS.

AS STATED IN THE INFO SECTION OF THIS ISSUE, ONLY COMMODORE STOCKED PARTS ARE LISTED, THE LISTINGS DO NOT CONTAIN PRICES, AVAILABILITY, OR SUBSTITUTIONS. CONSULT YOUR CURRENT PARTS PRICE BOOK AND THIS ON-LINE SECTION FOR INFORMATION ON COSTS OR CHANGES IN STATUS.

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PAGE 2

25/2-3.1 NEW "FATTER AGNUS 8372 - W/ 1MB CHIP RAM AVAILABLE SOON.

THE PARTS DEPARTMENT IS ACCEPTING ORDERS FOR THE NEW "FATTER" AGNUS, 8372, WHICH CAN ADDRESS 1 MEGABYTE OF CHIP RAM (SEE THE AMIGA SECTION OF THIS ISSUE FOR INSTALLATION INSTRUCTIONS).

THE CBM PART NUMBER FOR "FATTER" AGNUS IS 318069-02. DEALER BILLING IS \$78.50, SUGGESTED RETAIL IS 130.80.

25/2-4.1 A2000 REVISION 6 PCB PART NUMBER.

THE LATEST A2000 PCB REVISION 6, WITH 1 MEG DRAMS WILL BE AVAILABLE SOON FROM THE PARTS DEPARTMENT.

PART NUMBER	DESCRIPTION	RETURN CREDIT	DEALER BILLING
312720-05	A2000 PCB REV6 (NTSC)	\$225.00	\$520.00

END 25/2.



## 4

## CBM

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SECTION 4 - CBM

PAGE 1

- 25/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 25 (APR-MAY-JUN).
- 25/4-1.1 C64C - E TYPE PCB ASSEMBLIES VIDEO PROBLEMS.
- 25/4-2.1 1541B - RESISTOR CHANGE, ALPS OR NEWTRONICS TYPE DRIVE.
- 25/4-3.1 R/W HYBRID IC, PN#251853 IS NOT INTERCHANGABLE FOR 1541B/1571.

- 25/4-1.1 C64C - E TYPE PCB ASSEMBLIES VIDEO PROBLEMS.

THE PARTS DEPOT HAS RECEIVED SEVERAL C64C E TYPE PCB ASSEMBLIES BACK FROM SERVICE CENTERS.

THE DEFECTIVE BOARDS DISPLAYED NO VIDEO OUTPUT. THE SOURCE OF THE PROBLEM HAS BEEN TRACED TO DEFECTIVE RF MODULATORS.

RF MODULATORS FOR THE E TYPE PCB ARE PART NUMBER 252405-01 AND HAVE A DEALER COST OF \$11.55.

- 25/4-2.1 1541B - RESISTOR CHANGE, ALPS OR NEWTRONICS TYPE DRIVE.

1541B TYPE PCBS, PCB ASSY #250448, WILL REQUIRE A CHANGE IN RESISTORS R5, R7, R29, AND R30, IF USED WITH AN ALPS DRIVE. REFER TO THE CHART BELOW FOR CORRECT VALUES.

DRIVE TYPE	LOCATION R5 & R7	R29 & R30
---------------	---------------------	-----------

NEWTRONICS	1.2K 5%	3.6K 5% (VALUES AS SHOWN ON SCHEMATIC)
ALPS	453 OHMS 1%	3.48K 1%

THESE RESISTORS LIMIT THE WRITE CURRENT TO THE DRIVES. THEY ARE LOCATED OFF PINS 37 (Q) AND 38 (XQ) OF THE GATE ARRAY AT UC4.

- 25/4-3.1 R/W HYBRID IC, PN# 251853 NOT INTERCHANGABLE FOR 1541B/1571.

THE R/W HYBRID IC, PN# 251853 HAS TWO VERSIONS. PN# 251853-01 IS USED IN THE 1571, LOCATION U7. DO NOT SUBSTITUTE PN# 251853-02 (USED ON THE 1541B AT UD1) IN THE 1571 DRIVE.

THE YELLOW PARTS PRICE BOOK LISTS 251853-02 FOR BOTH THE 1541B AND THE 1571. THIS IS INCORRECT, USE -01 FOR 1571 AND -02 FOR 1541B.

END 25/4.

**JANUARY - MARCH 1989**  
**ISSUE 24**



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ISSUE 24    JAN - MAR 89

**1**    INFO

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24/1-0.0    INDEX - INFO SECTION TECHTOPICS 24.  
24/1-1.1    SERVICE TRAINING SCHEDULE FOR 1989, APRIL THUR JUNE.  
24/1-2.1    WARRANTY LABOR FOR CARD REPLACEMENT.

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**2**    PARTS

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24/2-0.0    INDEX - PARTS SECTION TECHTOPICS 24.  
24/2-1.1    UPDATE #2 FOR YELLOW PARTS PRICE BOOK.  
24/2-2.1    UPDATE #3 FOR YELLOW PARTS PRICE BOOK.

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**3**    AMIGA

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24/3-0.0    INDEX - AMIGA SECTION TECHTOPICS ISSUE 24.  
24/3-1.1    USING A2090A WITH 1.3 WORKBENCH AND 1.2 ROM.  
24/3-2.1    3.5 FLOPPY DISKETTE MEDIA.  
24/3-3.1    A2000 74ALS245 BUS TRANSCEIVER RESISTOR.  
24/3-4.1    A500/A2000 SYSTEM TEST RELEASE.  
24/3-4.2    ENCLOSURE: A500/A2000 SYSTEST PROGRAM DISKETTE 314879-01.  
24/3-4.3    ATTACHMENT: A500/A2000 SYSTEST INSTRUCTIONS.

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**4**    CBM

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24/4-0.0    INDEX - CBM SECTION TECHTOPICS ISSUE 24.  
24/4-1.1    NO CREDIT FOR 5 PIN VIDEO C64.  
24/4-2.1    C64C VIC CHIPS - NTSC AND PAL.  
24/4-3.1    1084S-D MONITOR SERVICE MANUAL RELEASE.  
24/4-3.2    ENCLOSURE: 1084S-D MONITOR SERVICE MANUAL 314996-01.

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**5**    PC

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24/5-0.0    INDEX - PC SECTION TECHTOPICS ISSUE 24.  
24/5-1.1    AUTO-CONFIG - THIRD PARTY Mouses.  
24/5-2.1    PC40-III SERVICE MANUAL RELEASE.  
24/5-2.2    ENCLOSURE: PC40-III SERVICE MANUAL 314134-01.

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ISSUE 24    JAN - MAR 89

**6**    C-TOC

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24/6-0.0    INDEX - CTOC SECTION TECHTOPICS ISSUE 24.  
24/6-1.1    EXTENDED CTOC SERVICES - PAST BULLETINS ACCESSIBLE BY MODEL.

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NOTE:    ISSUE 25 ON-LINE APRIL 3, 1989

## 1

## INFO

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24/1-0.0 INDEX - INFO SECTION TECHTOPICS 24.

24/1-1.1 SERVICE TRAINING SCHEDULE FOR 1989, APRIL THUR JUNE.

24/1-2.1 WARRANTY LABOR FOR CARD REPLACEMENT.

24/1-1.1 SERVICE TRAINING SCHEDULE FOR 1989, APRIL THUR JUNE.

COMMODORE SERVICE WILL BE CONDUCTING TRAINING CLASSES THROUGHOUT 1989. A OUTLINE WAS INCLUDED WITH MAILING OF ISSUE 23 DETAILING THE COURSES.

THE 1989 TRAINING SCHEDULE, JANUARY THUR JUNE.

MONTH	DATE	TRAINING DAYS	PRODUCTS	STATUS
APR	4-7	TUES-FRI	CBM	CLOSED
APR	10-14	MON-FRI	MONITORS	CLOSED
MAY	8-12	MON-FRI	AMIGA	OPEN
MAY	15-19	MON-FRI	MONITORS	OPEN
JUN	7-9	WED-FRI	PC	OPEN
JUN	12-16	MON-FRI	MONITORS	OPEN

24/1-2.1 WARRANTY LABOR FOR CARD REPLACEMENT.

NEW WARRANTY LABOR RATES, EFFECTIVE JANUARY 1, 1989 WHERE MAILED WITH TECHTOPICS ISSUE 23.

UNDER PC-XX AND A2XXX, CARD REPLACEMENT, NOTE 6 STATES: NO LABOR REIMBURSEMENTS WILL BE ISSUED FOR INSTALLATION OR EXCHANGE OF NON-FACTORY INSTALLED OPTION CARDS. ONLY CBM PARTS ARE COVERED.

THIS MEANS THE \$25.00 WARRANTY LABOR RATE ONLY APPLIES TO THE FOLLOWING CARDS:

ON PC10-1, PC10-2 : THE RAM EXPANDER CARD OR THE ATI VIDEO CARD.

ON 2000HD, A2500 : THE A2090A HD CONTROLLER CARD OR THE A2620 CO-PROCESSOR CARD.

NO OTHER CARDS ARE INSTALLED BY CBM AT THE FACTORY.

END 24/1.

## 2

## PARTS

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SECTION 2

PARTS - PAGE 1

24/2-0.0 INDEX - PARTS SECTION TECHTOPICS 24.

24/2-1.1 UPDATE #2 FOR YELLOW PARTS PRICE BOOK.

24/2-2.1 UPDATE #3 FOR YELLOW PARTS PRICE BOOK.

24/2-1.1 UPDATE # 2 FOR YELLOW PARTS PRICE BOOK.

THE FOLLOWING PCB ASSEMBLIES ARE NO LONGER PART OF THE PCB EXCHANGE PROGRAM, AND NO CREDIT FOR A RETURNED REPAIRABLE UNIT WILL BE ISSUED.

REPLACEMENTS FOR THE FOLLOWING PCB ASSEMBLIES MUST BE ORDERED DIRECT FROM THE PARTS DEPARTMENT, AND SERVICE CENTERS WILL BE BILLED THE FULL DEALER BILLING AMOUNT AS LISTED IN THE YELLOW PARTS PRICE BOOK OF OCTOBER 88.

PART NUMBER	DESCRIPTION	UNIT	RETURN CREDIT	DEALER BILLING	SUGGESTED RETAIL
326298-01	PCB ASSY C64 5 PIN	C64	NONE	-	-
601201-79	PCB ASSY 1526/802		NONE	104.50	174.15
250408-01	PCB ASSY CPU	SX64	NONE	104.50	
310163-01	PCB ASSY	+4	NONE	82.50	
250443-01	PCB ASSY	C16	NONE	82.50	
250410-01	PCB ASSY FDC	SX64	NONE	104.50	
250409-01	PCB ASSY I/O	SX64	NONE	104.50	
1540001-03	PCB ASSY LONG 1540/1541		NONE	88.00	
325519-03	DRIVE ASSY	SX64	NONE	88.00	

24/2-2.1 UPDATE #3 FOR YELLOW PARTS PRICE BOOK.

PLEASE MAKE THE FOLLOWING ADDITIONS AND SUSTITUTIONS IN THE YELLOW PARTS PRICE BOOK, RELEASED OCTOBER 1, 1988.

PART NUMBER	DESCRIPTION	UNIT	RETURN CREDIT	DEALER BILLING	SUGGESTED RETAIL
311979-02	PCB ASSY	A2090A	145.00	260.00	
312370-03	PCB ASSY	A2058	225.00	560.00	
312828-01	PCB ASSY 2MB	A2620	800.00	1200.00	
353307-02	KNOB, DRIVE	1541-II	SUB TO : 353307-06		
353307-03	KNOB, DRIVE	1541-II	SUB TO : 353307-07		
353307-04	KNOB, DRIVE	1541-II	SUB TO : 353307-05		
380728-01	CASE, BOTTOM	A2000	SUB TO : 380728-02		
314891-01	KIT, 1084S-P REPAIR			44.00	

END 24/2.

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SECTION 4

CBM - PAGE 1

24/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 24.

24/4-1.1 NO CREDIT FOR 5 PIN VIDEO C64.

24/4-2.1 C64C VIC CHIPS - NTSC AND PAL.

24/4-3.1 1084S-D MONITOR SERVICE MANUAL RELEASE.

24/4-3.2 ENCLOSURE: 1084S-D MONITOR SERVICE MANUAL 314996-01.

24/4-1.1 NO CREDIT FOR 5 PIN VIDEO C64.

THE 5 PIN VIDEO C64 PCB ASSEMBLY, PART NUMBER 326298-01, IS NOT INCLUDED IN THE PCB EXCHANGE PROGRAM. THERE WILL BE NO CREDIT ISSUED FOR THE RETURN OF THIS PCB ASSEMBLY.

UNITS REQUIRING A PCB REPLACEMENT MUST BE RETRO-FITTED WITH ONE OF THE 8 PIN VIDEO PCB ASSEMBLIES. THE NEW 8 PIN PCBs MUST BE ORDERED THROUGH THE PARTS DEPARTMENT, AND SERVICE CENTERS WILL BE BILLED AT THE FULL DEALER BILLING PRICE AS LISTED IN THE YELLOW PARTS PRICE BOOK ISSUED IN OCTOBER 1988.

NOTE: PCB # 250407-04 USES THE SAME TYPE OF SHIELD AS THE 5 PIN, OTHER 8 PIN PCB ASSEMBLIES WILL REQUIRE THE PURCHASE OF A NEW SHIELD.

[REPEAT OF 23/4-3.1]

24/4-2.1 C64C VIC CHIPS - NTSC AND PAL.

THE C64C SERVICE MANUAL ADDENDUM HAS THE NTSC AND PAL CHIP NUMBERS FOR THE VIC CHIP REVERSED. THE FOLLOWING IS THE CORRECT DESIGNATION.

64E PCB - 318014-01 VIC 8562 NTSC  
318027-01 VIC 8565 PAL

64 B3 PCB - 906109-01 VIC 6567 REV8 NTSC  
906111-01 VIC 6569 REV3 PAL

NOTE: ONLY NTSC VERSIONS ARE AVAILABLE FROM CBM PARTS.

24/4-3.1 1084S-D MONITOR SERVICE MANUAL RELEASE.

INCLUDED WITH TECHTOPICS ISSUE 24 MAILING PLEASE FIND THE 1084S-D MONITOR SERVICE MANUAL. MAILED TO ALL AUTHORIZED SERVICE CENTERS.

24/4-3.2 ENCLOSURE: 1084S-D MONITOR SERVICE MANUAL 314996-01.

MAILED WITH TECHTOPICS ISSUE 24, TO ALL AUTHORIZED SERVICE CENTERS.

END 24/4.

6

C-TOC

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24/6-0.0      INDEX - CTOC SECTION TECHTOPICS ISSUE 24.

24/6-1.1      EXTENDED CTOC SERVICES - PAST BULLETINS ACCESSIBLE BY MODEL.

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24/6-1.1      EXTENDED CTOC SERVICES - PAST BULLETINS ACCESSIBLE BY MODEL.

STARTING WITH ON-LINE ISSUE 25, PAST BULLETINS WILL  
BE ACCESSIBLE BY MODEL NUMBER.

NEW MENUS ARE ON-LINE WHICH ALLOW TECHNICIANS DIRECT  
ACCESS, UNDER PRODUCT LINE (AMIGA, CBM, OR PC), BY  
UNIT MODEL NUMBER TO ANY BULLETINS ISSUED FOR THAT UNIT,  
STARTING FROM ISSUE 18 (NOVEMBER 1987).

NOTE THAT ONLY REPAIR BULLETINS WILL BE LISTED,  
INFORMATION REGARDING RELEASE OF NEW TESTS, SERVICE  
MANUALS OR OTHER ENCLOSURES HAVE BEEN REMOVED IN ORDER  
TO KEEP THE HISTORY FILES AS CONCISE AS POSSIBLE.

IN ADDITION, IN THE PARTS SECTION A PARTS LIST, BY  
UNIT IS NOW ON-LINE. THIS PARTS LIST IS FOR COMMODORE  
STOCKED PARTS ONLY AND DOES NOT CONTAIN PRICES,  
AVAILABILITY, OR SUBSTITUTIONS. CONSULT YOUR CURRENT  
PARTS PRICE BOOK AND THE CURRENT ON-LINE PARTS UPDATES  
FOR INFORMATION ON COSTS.

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END 24/6.



# DECEMBER 1988 ISSUE 23



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ISSUE 23 - DECEMBER 88

SECTION 1

**1** INFO

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- 23/1-0.0 INDEX - INFO SECTION TECHTOPICS -
  - 23/1-1.1 WARRANTY CLAIMS, NARDA FORMS.
  - 23/1-2.1 NO CREDIT FOR NON-REPAIRABLE UNITS.
  - 23/1-3.1 OVERCHARGES BY SERVICE CENTERS.
  - 23/1-4.1 SERVICE TRAINING SCHEDULE FOR 1989, JAN THUR JUN.
  - 23/1-5.1 TECHTOPICS SUBSCRIPTIONS FOR 1989.
  - 23/1-6.1 WARRANTY LABOR RATE INCREASE EFFECTIVE JAN. 1989.
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SECTION 2

**2** PARTS

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- 23/2-0.0 INDEX - PARTS SECTION TECHTOPICS 23.
  - 23/2-1.1 UPDATE FOR YELLOW PARTS PRICE BOOK.
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SECTION 3

**3** AMIGA

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- 23/3-0.0 INDEX - AMIGA SECTION TECHTOPICS ISSUE 23.
  - 23/3-1.1 OPERATIONS NOTES - 1.3 AMIGA WORK BENCH.
- 

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SECTION 4

**4** CBM

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- 23/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 23.
  - 23/4-1.1 1084S-P LINE OUTPUT TRANSFORMER (T402)
  - 23/4-2.1 C64C MPU 8500 FOR TYPE E PCB ONLY.
- 

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SECTION 5

**5** PC

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- 23/5-0.0 INDEX - PC SECTION TECHTOPICS ISSUE 23.
  - 23/5-1.1 PC DRIVE ADD-ON KITS AVAILABLE FROM PARTS.
- 

## ATTACHMENTS

- 1) SERVICE TELEPHONE DIRECTORY 1989    3) WARRANTY LABOR RATES - JANUARY 1989
- 2) SERVICE QUICK REFERENCE SHEET 1989    4) 1989 SERVICE TRAINING SCHEDULE
- 5) COMMODORE STOCKED PARTS - 1084S-P

## 1

## INFO

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INFO

23/1-0.0 INDEX - INFO SECTION TECHTOPICS -

23/1-1.1 WARRANTY CLAIMS, NARDA FORMS.

23/1-2.1 NO CREDIT FOR NON-REPAIRABLE UNITS.

23/1-3.1 OVERCHARGES BY SERVICE CENTERS.

23/1-4.1 SERVICE TRAINING SCHEDULE FOR 1989, JAN THUR JUN.

23/1-5.1 TECHTOPICS SUBSCRIPTONS FOR 1989.

23/1-6.1 WARRANTY LABOR RATE INCREASE EFFECTIVE JAN. 1989.

23/1-1.1 WARRANTY CLAIMS, NARDA FORMS.

THE NARDA, ALL INDUSTRY SERVICE FORM #502 MUST USED FOR WARRANTY CLAIMS, AS STATED IN THE QUALIFIED SERVICE CENTER AGREEMENT WHICH ALL SERVICE CENTERS MUST SIGN.

AN EXAMPLE OF HOW TO FILL OUT THE FORM IS INCLUDED WITH YOUR SERVICE AGREEMENT. IT IS IMPORTANT THAT THESE

FORMS BE FILLED OUT PROPERLY IF YOU EXPECT TO RECIEVE YOUR CREDIT WITHOUT DELAY.

NARDA FORMS ARE BEING REVIEWED AND WILL BE RETURNED IF THEY ARE NOT FILLED OUT CORRECTLY, OR ARE ILLEGIBLE.

23/1-2.1 NO CREDIT FOR NON-REPAIRABLE UNITS.

AS DETAILED IN TECHTOPICS ISSUE 20 MARCH 88 (20/1-1.1) NO CREDIT WILL BE ISSUED FOR PCB'S OR ASSEMBLIES RETURNED WHICH ARE DETERMINED TO BE NON-REPAIRABLE. COMMODORE WILL RETURN ALL PRINTED CIRCUIT BOARDS AND DRIVE ASSEMBLIES

CLASSIFIED AS NON-REPAIRABLE TO THE SERVICE CENTER. REFER TO INFO SECTION OF MARCH 88, TECHTOPICS 22.

23/1-3.1 OVERCHARGES BY SERVICE CENTERS.

COMMODORE WILL NOT DETERMINE REPAIR RATES FOR SERVICE, HOWEVER EXCESSIVE OVERCHARGING BASED ON INDUSTRY STANDARDS, OR CUSTOMER COMPLAINTS WILL INITIATE A REVIEW OF YOUR AUTHORIZATION STATUS.

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SECTION 1

INFO

## 23/1-4.1 SERVICE TRAINING SCHEDULE FOR 1989, JAN THUR JUN.

COMMODORE SERVICE WILL BE CONDUCTING TRAINING CLASSES THROUGHOUT 1989. A OUTLINE IS INCLUDED WITH THIS ISSUE DETAILING THE COURSES.

THE 1989 TRAINING SCHEDULE, JANUARY THUR JUNE.

MONTH	DATE	TRAINING DAYS	PRODUCTS	STATUS
JAN	16-20	MON-FRI	AMIGA	OPEN
JAN	23-27	MON-FRI	MONITORS	OPEN
FEB	15-17	WED-FRI	PC	OPEN
FEB	20-24	MON-FRI	MONITORS	OPEN
MAR	6-10	MON-FRI	AMIGA	OPEN
MAR	13-17	MON-FRI	MONITORS	OPEN
APR	4-7	TUES-FRI	CBM	OPEN
APR	10-14	MON-FRI	MONITORS	OPEN
MAY	8-12	MON-FRI	AMIGA	OPEN
MAY	15-19	MON-FRI	MONITORS	OPEN
JUN	7-9	WED-FRI	PC	OPEN
JUN	12-16	MON-FRI	MONITORS	OPEN

## 23/1-5.1 TECHTOPICS SUBSCRIPTIONS FOR 1989.

TECHTOPICS SUBSCRIPTIONS WILL AUTOMATICALLY BE BILLED TO YOUR ACCOUNT UNDER THE FOLLOWING PART NUMBERS AND RATES.

314885-89	AMIGA/CBM/PC TECHTOPICS	\$129.95
314887-89	AMIGA TECHTOPICS	\$ 89.95
314888-89	CBM TECHTOPICS	\$ 29.95
314886-89	PC TECHTOPICS	\$ 69.95

YOUR CURRENT STATUS CAN BE DETERMINED BY THE MAILING LABEL ON YOUR ENVELOPE.

IF YOU WISH TO UPGRADE OR CHANGE YOUR CURRENT STATUS PLEASE CONTACT: ALICE FEENEY (215) 431-9368.

YOUR REPAIR STATUS IS PRINTED IN THE COMMODORE AUTHORIZED SERVICE CENTER BOOKLET, SHIPPED WITH EACH COMPUTER.

THE SUBSCRIPTION FEE ALSO COVERS FREE ACCESS TO C-TOC.

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SECTION 1

INFO

23/1-6.1 WARRANTY LABOR RATE INCREASE EFFECTIVE JAN. 1989.

EFFECTIVE JANUARY 1, 1989 THE LABOR PAYMENTS MADE  
TO AUTHORIZED SERVICE CENTERS FOR IN-WARRANTY  
REPAIRS WILL BE INCREASED.

A NEW WARRANTY LABOR RATE SHEET WILL BE ENCLOSED  
THE MAILING OF THIS TECHTOPICS, ISSUE 23.

END 23/1.

## 2

## PARTS

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SECTION 2

PARTS

23/2-0.0 INDEX - PARTS SECTION TECHTOPICS 23.

23/2-1.1 UPDATE FOR YELLOW PARTS PRICE BOOK.

23/2-1.1 UPDATE FOR YELLOW PARTS PRICE BOOK.

PLEASE MAKE THE FOLLOWING CHANGES AND ADDITIONS  
TO THE YELLOW PARTS PRICE BOOK, RELEASED OCTOBER 1, 1989.

PART NUMBER	DESCRIPTION	UNIT	DB	CRRU	SR	CODE
252114-01	SHEILD, TOP E BRD	C64C	2.45		3.85	ADD
314891-01	KIT 1084S-P REPAIR	1084S-P	44.00			***
380111-01	DRIVE ASSY 5.25	PC	109.00			CHANGE
380752-01	DRIVE ASSY 3.5	A2000	130.00			CHANGE
312365-01	A2052 PCB ASSY	A2052	360.00	225.00		CHANGE
311979-01	A2090 PCB ASSY	A2090	260.00	145.00		CHANGE
380755-01	A2088 PCB ASSY	A2088	455.00	225.00		CHANGE
314881-01	A2058 TECH DATA	A2058	11.00		16.50	NEW
314880-01	A2090A TECH DATA	A2090A	16.50		27.50	NEW

\*\*\* 1084S-P REPAIR KIT SEE CBM SECTION OF THIS ISSUE  
FOR DETAILS.

END 23/2.

## 4

## CBM

ISSUE 23 - DECEMBER 88

SECTION 4

CBM

23/4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 23.

23/4-1.1 1084S-P LINE OUTPUT TRANSFORMER (T402)

23/4-2.1 C64C MPU 8500 FOR TYPE E PCB ONLY.

23/4-1.1 1084S-P LINE OUTPUT TRANSFORMER (T402).

FAILURES OF RESISTOR R475 (15K) ON THE 1084S-P PHILIPS TYPE MONITOR AND SUBSEQUENT DAMAGE TO CAPACITOR C476 (.047uF, 250V) HAVE BEEN TRACED TO THE "LOT", LINE OUTPUT TRANSFORMER, T402.

THE OEM VENDOR HAS MADE AN IN-LINE CHANGE TO THE UNIT WITH A RE-DESIGNED TRANSFORMER. MONITORS

MANUFACTURED BETWEEN JUNE 1988 AND SEPTEMBER 1988 MAY REQUIRE A WARRANTY REPAIR. THE DATE OF MANUFACTURE IS INDICATED ON THE BACK OF THE TOP COVER.

THE 1084S-P MONITOR REPAIR KIT PN# 314891-01 WILL BE AVAILABLE THROUGH THE PARTS DEPARTMENT IN THE NEXT FEW WEEKS. THE DEALER BILLING IS \$44.00, FOR WHICH FULL CREDIT WILL BE ISSUED WHEN THE DEFECTIVE T402 IS RETURNED TO THE PARTS DEPOT WITH YOUR NARDA FORM.

23/4-2.1 C64C MPU 8500 FOR TYPE E PCB ONLY.

THE E PCB, PART NUMBER 250469-01, USES A 8500 MICROPROCESSOR, PART NUMBER 318012-01.

THIS IC IS FOR THE E BOARD ONLY, AND IS NOT COMPATIBLE WITH THE 6510 MPU USED ON OTHER C64 AND C64C PCBs.

END 23/4.



## CURRENT WARRANTY LABOR RATE

EFFECTIVE JANUARY 1, 1989

### CPU WARRANTY REPAIR

	C64/C128	C128D	PC-XX	A500	A1000	A2XXX
PCB REPLACEMENT	\$15.00	\$20.00	\$30.00	\$22.00	\$40.00	\$40.00
COMPONENT REPAIR	\$21.00	\$25.00	\$45.00	\$28.00	\$47.50	\$56.00
KEYBOARD	\$15.00	\$ 7.00	\$ 7.00	\$11.00	\$ 6.50	\$ 7.00
P/S EXCHANGE	\$ 7.00	\$16.50	\$27.50	\$ 7.00	\$40.00	\$27.50
NO DEFECT/MINOR	\$ 5.50	\$11.00	\$15.00	\$11.00	\$12.50	\$15.00
CARD REPLACEMENT			\$25.00 <sup>6</sup>			\$25.00 <sup>6</sup>
CARD COMP REPAIR			\$35.00 <sup>6</sup>			\$35.00 <sup>6</sup>

### DISK DRIVE — INTERNAL WARRANTY REPAIR

DRIVE REPLACEMENT	\$16.50	\$29.00	\$22.00	\$37.50	\$25.00
DRIVE ALIGNMENT	\$22.00	\$39.00	\$30.00	\$47.50	\$35.00

### DISK DRIVE — EXTERNAL WARRANTY REPAIR

	1541/1571/1581	A1010/A1020
PCB REPLACEMENT	\$19.00	\$20.00
COMPONENT REPAIR	\$25.00	\$25.00
DRIVE REPLACEMENT	\$21.00	\$21.00
DRIVE ALIGNMENT	\$22.00	\$50.00
NO DEFECT/MINOR	\$ 7.00	\$ 7.00

### RAM EXPANDERS — EXTERNAL WARRANTY REPAIR (ALL TYPES)

REPLACEMENT	\$ 7.00
COMPONENT REPAIR	\$11.00

### MONITOR WARRANTY REPAIR (ALL TYPES)

ALL REPAIRS	\$26.00
NO DEFECT/MINOR	\$12.00

### PRINTER WARRANTY REPAIR (ALL TYPES)

ALL REPAIRS	\$26.00
NO DEFECT/MINOR	\$12.00

- 1) CLAIMS FOR REPAIRS ON PRODUCTS NOT LISTED WILL BE REJECTED UNLESS PRIOR APPROVAL BY THE SERVICE DEPARTMENT HAS BEEN RECEIVED.
- 2) ALL RATES ARE FOR REPAIRS GUARANTEED BY THE REPAIR CENTER FOR 30 DAYS FROM REPAIR DATE.
- 3) IF MORE THAN ONE SERVICE IS PERFORMED ON THE SAME UNIT, ONLY THE HIGHER RATE WILL BE PAID.
- 4) PC-XX = PC10-1, PC10-2, PC10-III, PC COLT, PC20-III, PC40-III.
- 5) A2XXX = A2000, A2500, A2000HD.
- 6) NO LABOR REIMBURSEMENTS WILL BE ISSUED FOR INSTALLATION OR EXCHANGE OF NON-FACTORY INSTALLED OPTION CARDS. ONLY CBM PARTS ARE COVERED.
- 7) IMPROPER INSTALLATION OF ADD-ON OPTIONS VOIDS WARRANTY OF BOTH THE UNIT AND THE ADD-ON HARDWARE.





Computer Systems Division  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 431-9100

To All Service Centers:

Attached you will find a Course Outline and Training Schedule for the period of January 1989 thru June 1989. If you wish one or more of your technicians to attend one of these training sessions, please complete the attached Training Request Form and return it to the address below .

COMMODORE BUSINESS MACHINES  
1200 WILSON DRIVE  
WEST CHESTER, PA 19380  
ATTN: JOHN DIMEO  
TECHNICAL TRAINING

Commodore Field Service will also be holding new product introduction courses during this period. The location of this training will be selected by the Regional Manager.

Technicians who have attended Commodore Service Training from June 1988 or are confirmed for training for the current schedule will receive first invitation to these seminars at a discounted rate. Remaining seats will be offered on a first come first serve basis.

Please note that due to numerous requests ...

- 1) Training has been scheduled to allow more time to cover each product line.
- 2) Monitor training is now being offered.
- 3) Dates are scheduled with both Amiga or PC and Monitor training being held on back-to-back weeks allowing technicians the option of attending both.

The training will be either a Three, Four (CBM Only) or Five Day Session, (YOUR CHOICE), beginning at 9:00 A.M. and ending at 5:30 P.M. (EST), and will be held at Commodore Business Machines; 1200 Wilson Drive; West Chester, PA. 19380.

The fees for the Training are set at ...

- |                    |                 |                             |
|--------------------|-----------------|-----------------------------|
| 1) COMMODORE PC    | ( 3 Days Total) | \$100.00 Per Day = \$300.00 |
| 2) CBM ONLY        | ( 4 Days Total) | \$100.00 Per Day = \$400.00 |
| 3) COMMODORE AMIGA | ( 5 Days Total) | \$ 90.00 Per Day = \$450.00 |
| 4) MONITOR ONLY    | ( 5 Days Total) | \$ 90.00 Per Day = \$450.00 |
| 5) PC + MONITOR    | ( 8 Days Total) | \$ 75.00 Per Day = \$600.00 |
| 6) AMIGA + MONITOR | (10 Days Total) | \$ 75.00 Per Day = \$750.00 |



Computer Systems Division  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 431-9100

Technicians who have attended either Amiga or PC Training between June and December 1988 are eligible to sign up for Monitor Only training at a 50% Discount (\$225.00) based on seating available.

Two or more technicians from the same company who attend the same training session may attend any selected training at a 25% Discount per technician.

All technicians attending will receive a complete set of Service Manuals on all products covered during the session.

Diagnostic Kits will be available for purchase at the sessions. Please fill out the attached Diagnostic Order Form and submit it along with a check for the total amount during the first day of training.

This will insure your order will be ready at the end of the session. This form is for Diagnostic Kits ONLY. No parts or PCBs will be sold.

These Training Courses will familiarize your technician(s) with the different PCBs and Components in Commodore's current line of products, proper use of CPU and Peripheral Diagnostic Devices, Disk Drive Alignment and Adjustment as well as Hands-On Troubleshooting Techniques.

A drawing will be held at the end of each session. Attending technicians will be eligible to win one of Two Prizes.

GRAND PRIZE	--	AMIGA 500	-	A500/A2000 ONLY	
GRAND PRIZE	--	AMIGA 500	-	A500/A2000 + MONITOR	
GRAND PRIZE	--	PC COLT	-	PC10/20/40 ONLY	
GRAND PRIZE	--	A500/PC COLT	-	PC10/20/40 + MONITOR	* CHOICE
GRAND PRIZE	--	A500/PC COLT	-	MONITOR ONLY	* CHOICE
GRAND PRIZE	--	C64 COMPUTER	-	CBM ONLY	
SECOND PRIZE	--	AMIGA 1680 OR COMMODORE 1670	-	MODEM	* CHOICE

All attendees will receive a Commodore Service T-Shirt.

# 1989 TRAINING COURSE SCHEDULE COMMODORE SERVICE

<u>MONTH</u>	<u>DATE</u>	<u>PRODUCTS</u>	<u>TRAINING DAYS</u>
JANUARY	16-20	AMIGA ONLY	MONDAY-FRIDAY
JANUARY	23-27	MONITOR ONLY	MONDAY-FRIDAY
FEBRUARY	15-17	PC ONLY	WEDNESDAY-FRIDAY
FEBRUARY	20-24	MONITOR ONLY	MONDAY-FRIDAY
MARCH	6-10	AMIGA ONLY	MONDAY-FRIDAY
MARCH	13-17	MONITOR ONLY	MONDAY-FRIDAY
APRIL	4-7	CBM ONLY	TUESDAY-FRIDAY
APRIL	10-14	MONITOR ONLY	MONDAY-FRIDAY
MAY	8-12	AMIGA ONLY	MONDAY-FRIDAY
MAY	15-19	MONITOR ONLY	MONDAY-FRIDAY
JUNE	7-9	PC ONLY	WEDNESDAY-FRIDAY
JUNE	12-16	MONITOR ONLY	MONDAY-FRIDAY

January 1989  
S M T W T F S  
1 2 3 4 5 6 7  
8 9 10 11 12 13 14  
15 16 17 18 19 20 21  
22 23 24 25 26 27 28  
29 30 31

February 1989  
S M T W T F S  
1 2 3 4  
5 6 7 8 9 10 11  
12 13 14 15 16 17 18  
19 20 21 22 23 24 25  
26 27 28

March 1989  
S M T W T F S  
1 2 3 4  
5 6 7 8 9 10 11  
12 13 14 15 16 17 18  
19 20 21 22 23 24 25  
26 27 28 29 30 31

April 1989  
S M T W T F S  
1  
2 3 4 5 6 7 8  
9 10 11 12 13 14 15  
16 17 18 19 20 21 22  
23 24 25 26 27 28 29  
30

May 1989  
S M T W T F S  
1 2 3 4 5 6  
7 8 9 10 11 12 13  
14 15 16 17 18 19 20  
21 22 23 24 25 26 27  
28 29 30 31

June 1989  
S M T W T F S  
1 2 3  
4 5 6 7 8 9 10  
11 12 13 14 15 16 17  
18 19 20 21 22 23 24  
25 26 27 28 29 30

July 1989  
S M T W T F S  
1  
2 3 4 5 6 7 8  
9 10 11 12 13 14 15  
16 17 18 19 20 21 22  
23 24 25 26 27 28 29  
30 31

August 1989  
S M T W T F S  
1 2 3 4 5  
6 7 8 9 10 11 12  
13 14 15 16 17 18 19  
20 21 22 23 24 25 26  
27 28 29 30 31

September 1989  
S M T W T F S  
1 2  
3 4 5 6 7 8 9  
10 11 12 13 14 15 16  
17 18 19 20 21 22 23  
24 25 26 27 28 29 30

October 1989  
S M T W T F S  
1 2 3 4 5 6 7  
8 9 10 11 12 13 14  
15 16 17 18 19 20 21  
22 23 24 25 26 27 28  
29 30 31

November 1989  
S M T W T F S  
1 2 3 4  
5 6 7 8 9 10 11  
12 13 14 15 16 17 18  
19 20 21 22 23 24 25  
26 27 28 29 30

December 1989  
S M T W T F S  
1 2  
3 4 5 6 7 8 9  
10 11 12 13 14 15 16  
17 18 19 20 21 22 23  
24 25 26 27 28 29 30  
31

## 5 DAY COURSE OUTLINE AMIGA SERVICE TRAINING

### DAY ONE

9:00 - 10:30 - A500 OPERATION THEORY  
10:30 - 10:45 - MORNING BREAK  
10:45 - 12:30 - A500 HANDS-ON TROUBLESHOOTING  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:30 - A500 HANDS-ON TROUBLESHOOTING  
2:30 - 2:45 - AFTERNOON BREAK  
2:45 - 5:00 - DRIVE DIAGNOSTIC OPERATION  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY TWO

9:00 - 11:00 - A2000/A2000HD OPERATION THEORY  
11:00 - 11:15 - MORNING BREAK  
11:15 - 12:30 - A2000/A2000HD DIAGNOSTIC OPERATION  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:00 - A2000/A2000HD HANDS-ON TROUBLESHOOTING  
3:00 - 3:15 - AFTERNOON BREAK  
3:15 - 5:00 - DRIVE DIAGNOSTIC OPERATION  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY THREE

9:00 - 10:30 - A2088/A2286 THEORY  
10:30 - 10:45 - MORNING BREAK  
10:45 - 12:30 - A2088/A2286 INSTALLATION/CHECK  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:30 - A2088/A2286 HANDS-ON-TROUBLESHOOTING  
3:30 - 3:45 - AFTERNOON BREAK  
3:45 - 5:00 - PC DIAGNOSTICS AND DRIVE ALIGNMENT  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY FOUR

9:00 - 11:00 - A2090/2090A OPERATION THEORY  
11:00 - 11:15 - MORNING BREAK  
11:15 - 12:30 - A2090/2090A INSTALLATION  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:00 - HARD DRIVE SETUP  
3:00 - 3:15 - AFTERNOON BREAK  
3:15 - 5:00 - A2090/2090A HANDS-ON-TROUBLESHOOTING  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY FIVE

9:00 - 10:30 - A1010/A1020 AMIGA AND PC SIDE  
10:30 - 10:45 - MORNING BREAK  
10:45 - 12:30 - VIRTUAL DRIVES  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:30 - HARD DRIVE PARTIONING  
2:30 - 3:30 - INTRODUCTION TO CTOC  
3:30 - 4:00 - AFTERNOON BREAK/DRAWING  
4:00 - 4:30 - QUESTIONS AND ANSWERS  
4:30 - 5:00 - CLEANUP AND EQUIPMENT CHECK

### 3 DAY COURSE OUTLINE PC SERVICE TRAINING

#### DAY ONE

9:00 - 10:30 - PC10/PC20 OPERATION THEORY  
10:30 - 10:45 - MORNING BREAK  
10:45 - 12:30 - PC10/PC20 DIAGNOSTIC OPERATION  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:00 - PC10/PC20 OPTIONS INSTALLATION  
3:00 - 3:15 - AFTERNOON BREAK  
3:15 - 5:00 - PC10/PC20 HANDS-ON-TROUBLESHOOTING

#### DAY TWO

9:00 - 10:30 - PC10/PC20 DRIVE DIAGNOSTIC OPERATION  
10:30 - 10:45 - MORNING BREAK  
10:45 - 11:15 - CLEANUP AND EQUIPMENT CHECK  
11:15 - 11:45 - CLEANUP AND EQUIPMENT CHECK  
11:45 - 12:45 - LUNCH BREAK  
12:45 - 2:45 - PC40 OPERATION THEORY  
2:45 - 3:00 - AFTERNOON BREAK  
3:00 - 5:00 - PC40 HANDS ON TROUBLESHOOTING

#### DAY THREE

9:00 - 10:30 - PC40 HANDS ON TROUBLESHOOTING  
10:30 - 10:45 - MORNING BREAK  
10:45 - 12:30 - PC40 DRIVE DIAGNOSTIC OPERATION  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:00 - CLEANUP AND EQUIPMENT CHECK  
2:00 - 3:00 - INTRODUCTION TO CTOC  
3:00 - 3:30 - AFTERNOON BREAK/DRAWING  
3:30 - 5:00 - QUESTION AND ANSWER PERIOD

## 4 DAY COURSE OUTLINE CBM SERVICE TRAINING

### DAY ONE

9:00 - 10:00 - C64 OPERATION THEORY  
10:00 - 10:45 - C64 DIAGNOSTIC OPERATION  
10:45 - 11:00 - MORNING BREAK  
11:00 - 12:30 - C64 HANDS-ON TROUBLESHOOTING  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:30 - 1541 OPERATION THEORY  
2:30 - 3:00 - 1541 DIAGNOSTIC OPERATION  
3:00 - 3:15 - AFTERNOON BREAK  
3:15 - 5:00 - 1541 HANDS-ON TROUBLESHOOTING  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY TWO

9:00 - 9:30 - 1541-II OPERATION THEORY  
9:30 - 10:45 - 1541-II HANDS ON TROUBLESHOOTING  
10:45 - 11:00 - MORNING BREAK  
11:00 - 11:15 - CLEANUP AND EQUIPMENT CHECK  
11:15 - 12:30 - C128 OPERATION THEORY  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:15 - C128 DIAGNOSTIC OPERATION  
2:15 - 3:15 - C128 HANDS-ON TROUBLESHOOTING  
3:15 - 3:30 - AFTERNOON BREAK  
3:30 - 5:00 - C128 HANDS ON TROUBLESHOOTING  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY THREE

9:00 - 10:00 - 1571 OPERATION THEORY  
10:00 - 10:15 - MORNING BREAK  
10:15 - 10:45 - 1571 DIAGNOSTIC OPERATION  
10:45 - 12:30 - 1571 HANDS-ON TROUBLESHOOTING  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:00 - CLEANUP AND EQUIPMENT CHECK  
2:00 - 3:30 - C128D OPERATION THEORY  
3:30 - 3:45 - AFTERNOON BREAK  
3:45 - 5:30 - C128D DIAGNOSTIC OPERATION

### DAY FOUR

9:00 - 10:15 - C128D HANDS ON TROUBLESHOOTING  
10:15 - 10:30 - MORNING BREAK  
10:30 - 11:00 - CLEANUP AND EQUIPMENT CHECK  
11:00 - 11:45 - 1581 OPERATION THEORY  
11:45 - 12:30 - 1581 DIAGNOSTIC OPERATION  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:00 - 1581 HANDS-ON TROUBLESHOOTING  
3:00 - 3:30 - AFTERNOON BREAK/DRAWING  
3:30 - 3:45 - CLEANUP AND EQUIPMENT CHECK  
3:45 - 4:45 - INTRODUCTION TO CTOC  
4:45 - 5:30 - QUESTION AND ANSWER PERIOD

## 5 DAY COURSE OUTLINE MONITOR SERVICE TRAINING

### DAY ONE

9:00 - 11:00 - 1802 OPERATION THEORY  
11:00 - 11:15 - MORNING BREAK  
11:15 - 12:00 - 1802 OPERATION THEORY  
12:00 - 12:30 - 1802 HANDS ON TROUBLESHOOTING  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:30 - 1802 HANDS ON TROUBLESHOOTING  
3:30 - 3:45 - AFTERNOON BREAK  
3:45 - 5:00 - CONVERGENCE/BLACK & WHITE SETUP  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY TWO

9:00 - 11:00 - 1080/2002 OPERATION THEORY  
11:00 - 11:15 - MORNING BREAK  
11:15 - 12:30 - 1080/2002 HANDS ON TROUBLESHOOTING  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:30 - 1080/2002 HANDS ON TROUBLESHOOTING  
3:30 - 3:45 - AFTERNOON BREAK  
3:45 - 5:30 - 1080/2002 HANDS ON TROUBLESHOOTING

### DAY THREE

9:00 - 10:30 - 1080/2002 HANDS ON TROUBLESHOOTING  
10:30 - 10:45 - MORNING BREAK  
10:45 - 12:00 - CONVERGENCE/BLACK & WHITE TRACKING  
12:00 - 12:30 - CLEANUP AND EQUIPMENT CHECK  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:30 - 1084/1084S OPERATION THEORY  
3:30 - 3:45 - AFTERNOON BREAK  
3:45 - 5:30 - 1084/1084S OPERATION THEORY

### DAY FOUR

9:00 - 11:00 - 1084/1084S HANDS ON TROUBLESHOOTING  
11:00 - 11:15 - MORNING BREAK  
11:15 - 12:30 - 1084/1084S HANDS ON TROUBLESHOOTING  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 3:00 - 1084/1084S HANDS ON TROUBLESHOOTING  
3:00 - 3:15 - AFTERNOON BREAK  
3:15 - 5:00 - CONVERGENCE/BLACK & WHITE SETUP  
5:00 - 5:30 - CLEANUP AND EQUIPMENT CHECK

### DAY FIVE

9:00 - 11:00 - HANDS ON TROUBLESHOOTING (YOUR CHOICE)  
11:00 - 11:15 - MORNING BREAK  
11:15 - 12:30 - HANDS ON TROUBLESHOOTING (YOUR CHOICE)  
12:30 - 1:30 - LUNCH BREAK  
1:30 - 2:30 - HANDS ON TROUBLESHOOTING (YOUR CHOICE)  
2:30 - 3:00 - CLEANUP AND EQUIPMENT CHECK  
3:00 - 3:30 - AFTERNOON BREAK/DRAWING  
3:30 - 4:30 - INTRODUCTION TO CTC  
4:30 - 5:30 - QUESTION AND ANSWER PERIOD



**TRAINING REQUEST FORM  
COMMODORE SERVICE**

**PLEASE COMPLETE ONE FORM PER ATTENDEE**

**RETURN COMPLETED FORM 30-60 DAYS PRIOR TO REQUESTED DATE**

**1) REQUESTED DATE** \_\_\_\_\_

**2) ALTERNATE DATE** \_\_\_\_\_

**3) COMPANY NAME** \_\_\_\_\_

**TECHNICIAN** \_\_\_\_\_

**ADDRESS** \_\_\_\_\_

**TELEPHONE** \_\_\_\_\_

**4) BRIEFLY DESCRIBE SKILL LEVEL OF ATTENDING TECHNICIAN**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**SIGNATURE OF SERVICE MANAGER**

**PLEASE RETURN COMPLETED FORM TO: COMMODORE BUSINESS MACHINES  
1200 WILSON DRIVE  
WEST CHESTER, PA 19380**

**ATTN: JOHN DIMEO  
TECHNICAL TRAINING**

# COMMODORE STOCKED PARTS - 1084S-P

CBM PART NUMBER	DESCRIPTION	LOCATION	PHILIPS OEM NUMBER
314890-01	SERVICE MANUAL 1084S-P		
314851-01	CABLE 1084 (6 TO 23 )		
602200-60	LINE CHOKE	S102	4822 157 52228
602200-25	COIL, DEGAUSSING	S104	4822 157 52274
602200-59	TRANSFORMER POWER	T101	4822 142 60379
602201-85	TRANSFORMER HORZ DRIVE	T401	4822 146 21263
602201-86**	TRANSFORMER OUTPUT	T402	4822 140 10349
602201-31	CAP .0082 uF, 1.5KV POLY FILM	C467	4822 121 43061
602201-32	CAP .022 uF, 400V POLYPROP	C468	4822 121 20237
602200-53	RES P.T.C. DUAL	R104	4822 116 40035
602200-95	POTM, 59M FOCUS CONTROL	R732	4822 101 20821
602200-28	SWITCH, POWER	SK1	4822 276 11501
602200-76	IC OPTIC COUPLER CNX62	IC101	4822 130 90121
602202-10	IC AUDIO AMP TDA 2611AQ	IC301	4822 209 80444
602202-11	IC VERT SIG TDA2653A	IC302	5322 209 82945
602202-14	IC HORZ SIG TDA2595/V4 16P	IC401	4822 209 72155
602202-22	IC VIDEO TDA 4570 28P	IC501	4822 209 71398
602202-23	IC VIDEO AMP TDA3505	IC502	4822 209 71971
602202-18	TRANSISTOR NPN BC639	TS461	4822 130 41053
602201-00	TRANSISTOR BF869	TS711	4822 130 41773
602200-64	DIODE GP15J	D107	4822 130 33887
602200-22	CRT	B100	4822 131 20149
602200-85	CRT SOCKET		4822 255 70217
602200-03	CABINET (CM8562)		4822 701 10567
602200-06	COVER CONTROL PANEL DOOR		4822 701 10568

\*\* T402 USED IN UNITS MANUFACTURED PRIOR TO JUNE 1988.

T402 FOR UNITS MANUFACTURED AFTER JUNE 1988 USE OEM PART  
NUMBER 3138 138 30100 (HAVE FOCUS CONTROL AND BRIGHTNESS MOUNTED)  
ARE AVAILABLE IN 1084S-P REPAIR KIT, CBM PN# 314891-01.

314891-01 KIT, 1084S-P REPAIR

## INCLUDES:

314892-01	OUTPUT TRANSFORMER	T402	3138 138 30100
314893-01	RESISTOR 15K, 2W	R475	2120 105 90C63
314894-01	CAP .047 uF MYLAR	C476	2222 368 45473
314895-01	WIRE PVC ORG, 24 AWG	-	0722 183 00004
314896-01	CAP .0056 uF, 50V CERAMIC	C356	2020 552 90817
314897-01	CAP .022uF, 50V CERAMIC	C561	2020 550 90526
314898-01	INSTRUCTIONS		

NOTE: PARTS LISTED ABOVE AS PART OF KIT #314891-01 ARE ONLY  
AVAILABLE WITH THE KIT. THEY MAY NOT BE PURCHASED INDIVIDUALLY.

# OCTOBER 1988 ISSUE 22



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## ISSUE 22 - OCTOBER 88

### 1 INFO

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- 22/1-0.0 INDEX - INFO SECTION TECHTOPICS -
  - 22/1-1.1 PAST DUE ACCOUNTS.
  - 22/1-2.1 OCTOBER TRAINING SPECIAL.
  - 22/1-3.1 DOUBLE-UP DISCOUNTS FOR 5-DAY COURSES.
  - 22/1-4.1 CURRENT SERVICE TRAINING SCHEDULE.
  - 22/1-5.1 800 SERVICE FOR PENNSYLVANIA.
  - 22/1-6.1 SALES COMPANIES RETURN AUTHORIZATION  
POLICY CHANGE.
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### 2 PARTS

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  - 22/2-1.1 PARTS PRICE INCREASE EFFECTIVE OCT. 1.
  - 22/2-2.1 C64 POWER SUPPLY SPECIAL SALE.
  - 22/2-3.1 A2090, A2052, A2088 PCB DEALER BILLING.
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### 3 AMIGA

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- 22/3-0.0 INDEX - AMIGA SECTION TECHTOPICS ISSUE 22.
  - 22/3-1.1 FAT AGNUS SOCKET SPECIFICATIONS.
  - 22/3-2.1 FLAT PACK IC CHIP EXTRACTOR.
  - 22/3-3.1 A1020 OPERATIONS ADDENDUM.
  - 22/3-4.1 A2090A TECH DATA MANUAL.
  - 22/3-4.2 ENCLOSURE: E22/3-4.2 A2090A PN# 314880-01.
  - 22/3-5.1 A2058 TECH DATA MANUAL.
  - 22/3-5.2 ENCLOSURE: E22/3-5.2 A2058 PN# 314881-01.
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### 4 CBM

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  - 22/4-1.1 C128D ROM RELEASE NOTES.
  - 22/4-2.1 1084 PHILIPS MONITOR CABLES.
  - 22/4-3.1 1541-II PCB-DRIVE ASSY REFERENCE.
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### 5 PC

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- 22/5-0.0 INDEX - PC SECTION TECHTOPICS ISSUE 22.
  - 22/5-1.1 PC10-III, PC20-III, COLT MEMORY MAP.
  - 22/5-2.1 PC10-III, PC20-III, COLT CBM 8088 MONITOR.
  - 22/5-3.1 PC10, COLT BIOS 4.36 RELEASE NOTES.
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## ISSUE 22 - OCTOBER

### 6 C-TOC

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- 22/6-0.0 INDEX - C-TOC SECTION TECHTOPICS ISSUE 22.
  - 22/6-1.1 UPDATE INFORMATION FOR AUTHORIZED USERS.
- 

NOTE: ISSUE 22 ON-LINE AUG 15 TO NOV 4, 1988.  
ISSUE 23 ON-LINE START NOV 7, 1988.

# 1

## INFO

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22/1-4.1 CURRENT SERVICE TRAINING SCHEDULE.  
22/1-5.1 800 SERVICE FOR PENNSYLVANIA.  
22/1-6.1 SALES COMPANIES RETURN AUTHORIZATION  
POLICY CHANGE.

22/1-1.1 PAST DUE ACCOUNTS.

PLEASE KEEP YOUR ACCOUNT UP TO DATE. ANY ACCOUNT 30 DAYS  
PAST DUE WILL RESULT IN CANCELLATION OF ALL YOUR CURRENT  
BACK ORDERS.

THEREFORE, ONCE YOUR ACCOUNT HAS BEEN CLEANED UP, YOU WILL  
HAVE TO RE-ORDER.

22/1-2.1 OCTOBER TRAINING SPECIAL.

SPECIAL RATES ARE BEING OFFERED TO ALL AUTHORIZED SERVICE  
CENTERS FOR THE COMMODORE SCHEDULED 5-DAY SERVICE TRAINING  
COURSES DURING OCTOBER 1988.

OCTOBER 10TH - 14TH

OCTOBER 24TH - 28TH

OCTOBER 31ST - NOVEMBER 4TH

TECHNICIANS MAY ATTEND THESE COURSES FOR A REDUCED RATE  
OF \$75.00 PER DAY (\$125.00 SAVINGS).

DOUBLE-UP DISCOUNTS ARE NOT VALID DURING THIS SPECIAL.

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## 22/1-3.1 DOUBLE-UP DISCOUNTS FOR 5-DAY SERVICE TRAINING.

DISCOUNTS ARE BEING OFFERED TO AUTHORIZED SERVICE CENTERS ENROLLING MORE THAN ONE TECHNICIAN IN COMMODORE SCHEDULED 5-DAY SERVICE TRAINING COURSES.

FOR EACH TECHNICIAN ENROLLED AT THE NORMAL RATE, A SECOND TECHNICIAN FROM THE SAME COMPANY MAY ATTEND THE SAME TRAINING COURSE FOR \$250.00 (50% DISCOUNT). THIS DISCOUNT INCLUDES 5-DAY COURSES ONLY. AND IS NOT VALID DURING THE OCTOBER SPECIAL (SEE 22/1-2.1 ABOVE).

## 22/1-4.1 CURRENT SERVICE TRAINING SCHEDULE.

PLEASE CONTACT JOHN DIMEO AT (215) 431-9214 OR TONY GRECO AT (215) 431-9215 FOR DETAILS.  
THE CURRENT 1988 SCHEDULE IS AS FOLLOWS:

MONTH	DATE	TRAINING DAYS	PRODUCTS	STATUS
NOV	7-9	MON-WED	CBM ONLY	OPEN
NOV	14-18	MON-FRI	CBM/PC/AMIGA	OPEN
NOV	28-DEC2	MON-FRI	CBM/PC/AMIGA	OPEN
DEC	5-9	MON-FRI	CBM/PC/AMIGA	OPEN
DEC	13-15	TUES-THUR	AMIGA/PC ONLY	OPEN
DEC	19-23	MON-FRI	CBM/PC/AMIGA	OPEN

## 22/1-5.1 800 SERVICE FOR PENNSYLVANIA.

SERVICE CENTERS IN PENNSYLVANIA MAY NOW ACCESS THE TOLL FREE 800 TECH HOT LINE SERVICE.

THE NUMBER FOR THE TECH HOT LINE IS 1-800-874-4811. TOLL FREE ACCESS TO C-TOC WILL ALSO BE AVAILABLE TO PENNSYLVANIA SERVICE CENTERS IN THE NEAR FUTURE.

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22/1-6.1 SALES COMPANIES RETURN AUTHORIZATION POLICY CHANGE.

STARTING SEPTEMBER 1, 1988, COMMODORE WILL PUT INTO EFFECT A NEW RETURN AUTHORIZATION POLICY FOR SALES COMPANIES.

THE NEW RETURN PROGRAM WILL UNDOUBTABLY IMPACT YOUR REPAIR BUSINESS. YOU SHOULD SEE AN INCREASE IN THE NUMBER OF UNITS REQUIRING SERVICE.

BE PREPARED! STOCK UP ON PARTS NOW! REMEMBER A PARTS PRICE INCREASE WILL GO INTO EFFECT OCTOBER 1, 1988.

END ISSUE 22, INFO 10/88

## 2

## PARTS

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 22/2-2.1 C64 POWER SUPPLY SPECIAL SALE.  
 22/2-3.1 A2090, A2052, A2088 PCB DEALER BILLING.

22/2-1.1 PARTS PRICE INCREASE EFFECTIVE OCT. 1.

EFFECTIVE OCTOBER 1, 1988 ALL SERVICE PARTS PRICES WILL BE INCREASED. SERVICE CENTERS ARE ENCOURAGED TO PLACE ORDERS NOW.

A NEW REVISED PARTS PRICE BOOK WILL BE RELEASED AT THE END OF SEPTEMBER WITH THE NEW PRICING STRUCTURE.

[REPEAT OF BULLETIN 21/2-5.1 TT21]

22/2-2.1 C64 POWER SUPPLY SPECIAL SALE.

C64 POWER SUPPLIES, REGULARLY PRICED AT \$18.00 ARE NOW AVAILABLE AT \$15.00 IN CASE LOTS OF 16. SERVICE CENTERS SAVE \$48.00 FOR A LIMITED TIME.

THIS SPECIAL SALE WILL BE IN EFFECT UNTIL SEPT 30, 1988.

[REPEAT OF BULLETIN 21/2-4.1 TT21]

22/2-3.1 A2090, A2052, A2058 PCB DEALER BILLING.

EFFECTIVE IMMEDIATELY. THE DEALER BILLING FOR THE A2090, A2058, AND THE A2088 PCB HAVE BEEN ADJUSTED.

PART NUMBER	DESCRIPTION	RETURN CREDIT	DEALER BILLING
311979-01	A2090 PCB ASSY	\$145.00	\$260.00
312365-01	A2052 PCB ASSY	\$225.00	\$360.00
380755-01	A2088 PCB ASSY	\$225.00	\$455.00
380111-01	DRIVE ASSY 5.25		\$109.00
380752-01	DRIVE ASSY 3.5		\$130.00

END ISSUE 22, PARTS 10/88



## 4

## CBM

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22/4-2.1 1084 PHILIPS MONITOR CABLES.  
22/4-3.1 1541-II PCB-DRIVE ASSY REFERENCE.

22/4-1.1 C128D ROM RELEASE NOTES.

THE FOLLOWING MODIFICATIONS HAVE BEEN MADE TO THE 318020-05 KERNAL CODE.

- A) # 318023-03 EDITOR, KERNAL, CP/M (\$C000-\$FFFF, U32)  
CKSUM= E424
1. SECURE - THIS KERNAL INITIALIZATION ROUTINE HAS BEEN MODIFIED TO ACCOMMODATE TECHNOLOGICAL ADVANCES IN DRAMS. THE DISCHARGE RATE FOR DATA CELLS HAS LENGTHED AND IT NO LONGER POSSIBLE TO RELY ON LOSS OF DATA AS INDICATIVE OF A POWER CYCLE AS OPPOSED TO A RESET. THE SECURE ROUTINE HAS BEEN PATCHED TO EXAMINE THE CONTENTS OF THE 8568 VDC REGISTERS WHICH WILL CONTAIN \$FF IF POWER CYCLED BUT WILL RETAIN THEIR PREVIOUSLY PROGRAMMED DATA THROUGH RESETS. THE EXISTING DETECTION OF A "CBM" RAM KEY IN BANK ONE REMAINS FOR COMPATABILITY. THIS PATCH REQUIRED NEW CODE IN PATCH AREA.
  2. DIABYE - THIS KERNAL SERIAL I/O ROUTINE HAS BEEN PATCHED TO PROVIDE A LONGER DELAY. THIS WILL ELIMINATE CERTAIN RANDOMLY OCCURING DEVICE NOT READY ERRORS, PARTICULARLY AT 2 MHZ. THIS WAS ACCOMPLISHED VIA SINGLE BYTE INLINE PATCH.
  3. OPN232 - THIS KERNAL ROUTINE HAS BEEN PATCHED TO CORRECTLY RETURN ERROR STATUS. WHEN IMPLEMENTING AN X-LINE INTERFACE IT WAS POSSIBLE TO RECEIVE AN ERROR WHEN THER WAS NONE. THIS WAS ACCOMPLISHED VIA SINGLE INLINE PATCH.
  4. THE ROM SIGNATURE LOCATION \$CFFC AND \$CFFD (LO/HI) IS \$8C3E.
  5. THE ROM REVISION BYTE AT LOCATION \$CFFE, HAS INCREMNETED FROM \$01 TO \$02.
  6. THE ROM CHECKSUM BYTE AT LOCATION \$CFFF, HAS CHANGED FROM \$3C TO \$3B.
  7. THE KERNAL REVISION BYTE AT LOCATION \$FF80 HAS BEEN INCREMENTED FROM \$01 TO \$02.

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## 22/4-2.1 1084 PHILIPS MONITOR CABLES.

1084 MONITORS (PHILIPS TYPE) ARE SHIPPED WITH TWO PACKS OF CABLES.

PACK # 318152 CONTAINS CABLES FOR C128/PC.

PN# 905103-06 IS 8 TO 3 PIN COMPOSITE CABLE.

PN# 315704-01 IS 8 TO 9 PIN FOR PC.

PACK # 318151-01 CONTAINS CABLES FOR AMIGA.

PN# 314851-01 IS 23 PIN RGB CABLE.

PN# 327284-01 IS AUDIO Y CABLE.

## 22/4-3.1 1541-II PCB-DRIVE ASSY REFERENCE.

1541-II PCB ASSEMBLY PN# 340503-01 HAS THREE (3) REVISION NUMBERS.

1) 340503-01 REV 4 BOARD: CN4 HAS ALL SEVEN (7) PINS.

2) 340503-01 REV 5 BOARD: PINS 1 & 2 OF CN4 ARE REMOVED, R41 IS REMOVED.

3) 340503-01 REV 6 BOARD: PINS 1 & 2 OF CN4 ARE REMOVED, R41 HAS BEEN RE-INSTALLED.

1541-II HAS THREE (3) DRIVE ASSEMBLIES.

1) 359901-01 NEWTRONICS D500 - USE ONLY REV 4 PCB.

2) 359902-01 CHINON FZ501 - USE REV 4, 5, OR 6 PCBS.

3) 359901-02 NEWTRONICS D500 TYPE R - USE REV 4, 5, OR 6 PCBS.

END ISSUE 22, CBM 10/88

# 6

## C-TOC

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22/6-0.0 INDEX - CTOC SECTION TECHTOPICS ISSUE 22.

22/6-1.1 UPDATE INFORMATION FOR AUTHORIZED USERS.

22/6-1.1 UPDATE INFORMATION FOR AUTHORIZED USERS.

- 1.) SERVICE CENTERS ARE ALLOWED ONE USERNAME, PASSWORD ONLY. REQUESTS FOR A SECOND SIGN-ON CODE WILL BE IGNORED.
- 2.) MAIL - EDITING FEATURES WITHIN THE MAIL PROGRAM ARE LIMITED. YOU CAN USE CNTRL-C TO CANCEL YOUR MESSAGE OR DELETE KEY TO BACKSPACE/DELETE ON THE CURRENT LINE.
- 3.) LINE ERRORS/ LOGIN FAILURES - TWO DEFECTIVE MODEMS, LAST MONTH, WERE CAUSING SIGN-ON PROBLEMS. THESE MODEMS ARE OFF-LINE NOW.
- 4.) CONTACT HALSEY BEACH AT 215 431-9376 IN THE SERVICE DEPARTMENT IF YOU ARE HAVING PROBLEMS SIGNING ON.
- 5.) 800 SERVICE FOR PENNSYLVANIA BASED SERVICE CENTERS HAS BEEN APPLIED FOR. NO DATE HAS BEEN SET BY THE PHONE COMPANY TO COMPLETE INSTALLATION.

END ISSUE 22, CTOC 10/88

# JUNE 1988

## ISSUE 21



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ISSUE 21 - JUNE 88

### 1 INFO

INFO

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- 21/1-0.0 INDEX - INFO SECTION TECHTOPICS 21.
  - 21/1-1.1 WARRANTY CLAIM PROCESSING.
  - 21/1-2.1 SERVICE TRAINING SCHEDULE.
  - 21/1-3.1 WELCOME NEW SERVICE TECHNICIANS.
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### 2 PARTS

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- 21/2-0.0 INDEX - PARTS SECTION TECHTOPICS 21.
  - 21/2-1.1 PARTS BACK ORDER STATUS.
  - 21/2-2.1 NEW SERVICE PARTS PRICE BOOK 1988.
  - 21/2-3.1 PARTS PRICE BOOK ERRATUS #1.
  - 21/2-4.1 C64 POWER SUPPLY SPECIAL SALE.
  - 21/2-5.1 PARTS PRICE INCREASE EFFECTIVE OCT. 1.
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### 3 AMIGA

AMIGA

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- 21/3-0.0 INDEX - AMIGA SECTION TECHTOPICS 21.
  - 21/3-1.1 ERRATUS 20/3-3.2 A1020 DISK DRIVE FIX.
  - 21/3-1.2 A1020 OPERATIONS USING AMIGADOS.
  - 21/3-1.3 A1020 OPERATIONS USING MSDOS (TRANS V1.2).
  - 21/3-2.1 A2300 GENLOCK TECHNICAL SPECIFICATIONS.
  - 21/3-2.2 ENCLOSURE: E21/3-2.2 - A2300 TECH SPECS.
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### 4 CBM

CBM

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- 21/4-0.0 INDEX - CBM SECTION TECHTOPICS 21.
  - 21/4-1.1 NEW DIAGNOSTIC DISK 1571/128D.
  - 21/4-2.1 1802 MONITOR - WARRANTY FIX.
  - 21/4-3.1 1084 MONITOR SERVICE MANUAL - PHILIPS TYPE.
  - 21/4-3.2 ENCLOSURE: E21/4-3.2 1084 SERVICE MANUAL # 314890-01.
  - 21/4-4.1 1802 MONITOR SERVICE MANUAL - DAEWOO TYPE.
  - 21/4-4.2 ENCLOSURE: E21/4-4.2 1802 SERVICE MANUAL # 602155-85.
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### 5 PC

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- 21/5-0.0 INDEX - PC SECTION TECHTOPICS ISSUE 21.
  - 21/5-1.1 PC10/COLT DIAG PROG V2.0 DISKETTE.
  - 21/5-2.1 PC10-III POWER SUPPLY SCHEMATIC.
  - 21/5-2.2 ENCLOSURE: E21/5-2.2 - PC10-III POWER SUPPLY SCHEMATIC.
  - 21/5-3.1 PC10-III KEYBOARD SCHEMATIC.
  - 21/5-3.2 ENCLOSURE: E21/5-3.2 - PC10-III KEYBOARD SCHEMATIC.
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### 6 C-TOC

C-TOC

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- 21/6-0.0 INDEX - C-TOC SECTION TECHTOPICS ISSUE 21.
  - 21/6-1.1 C-TOC INTRODUCTION.
-

# 1

## INFO

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SECTION 1

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21/1-0.0 INDEX - INFO SECTION TECHTOPICS -

21/1-1.1 WARRANTY CLAIM PROCESSING.

21/1-2.1 SERVICE TRAINING SCHEDULE.

21/1-3.1 WELCOME NEW SERVICE TECHNICIANS.

21/1-1.1 WARRANTY CLAIM PROCESSING.

ONLY WARRANTY CLAIMS THAT DO NOT REQUIRE PARTS REPLACEMENTS SUCH AS, NO TROUBLE FOUND AND DRIVE ALIGNMENTS SHOULD BE SUBMITTED DIRECTLY TO THE CREDIT DEPARTMENT.

ALL WARRANTY CLAIMS USING PARTS REPLACEMENT SHOULD BE SUBMITTED WITH THE DEFECTIVE PART, TO THE PARTS DEPOT.

21/1-2.1 SERVICE TRAINING SCHEDULE. ( SEE INFO PAGE 2 )

21/1-3.1 WELCOME NEW SERVICE TECHNICIANS.

SERVICE IS PLEASED TO ANNOUNCE THAT TWO TECHNIANS HAVE JOINED OUR STAFF.

TONY GRECO, WHO WILL BE WORKING WITH JOHN DIMEO IN TRAINING.

RON BARDSLEY, WHO WILL BE WORKING WITH BRENDA BRICE ON THE TECH HOT LINE.

PLEASE NOTE: BRENDA BRICE IS NOW AT EXTENSION 9183.

ISSUE 21 - JUNE 88

SECTION 1

INFO - PAGE 2

## 21/1-2.1 SERVICE TRAINING SCHEDULE.

SERVICE WILL BE CONDUCTING COMPONENT LEVEL TRAINING CLASSES AT THE WEST CHESTER FACILITY STARTING IN JULY 1988.

PLEASE CONTACT JOHN DIMEO AT (215) 431-9214 OR TONY GRECO AT (215) 431-9215 FOR DETAILS.

THE 1988 SCHEDULE IS AS FOLLOWS:

MONTH	DATE	TRAINING DAYS	PRODUCTS	STATUS
JULY	25-29	MON-FRI	CBM/PC/AMIGA	FULL
AUG	2-4	TUES-THUR	CBM ONLY	OPENED
AUG	8-12	MON-FRI	CBM/PC/AMIGA	OPENED
AUG	16-18	TUES-THUR	CBM ONLY	OPENED
AUG	22-26	MON-FRI	CBM/PC/AMIGA	OPENED
AUG	29-SEPT2	MON-FRI	CBM/PC/AMIGA	OPENED
SEPT	7-9	WED-FRI	AMIGA/PC ONLY	OPENED
SEPT	12-16	MON-FRI	CBM/PC/AMIGA	OPENED
SEPT	20-22	TUES-THUR	CBM ONLY	OPENED
SEPT	26-30	MON-FRI	CBM/PC/AMIGA	OPENED
OCT	4-6	TUES-THUR	CBM ONLY	OPENED
OCT	10-14	MON-FRI	CBM/PC/AMIGA	OPENED
OCT	18-20	TUES-THUR	AMIGA/PC ONLY	OPENED
OCT	24-28	MON-FRI	CBM/PC/AMIGA	OPENED
OCT	31-NOV4	MON-FRI	CBM/PC/AMIGA	OPENED
NOV	7-9	MON-WED	CBM ONLY	OPENED
NOV	14-18	MON-FRI	CBM/PC/AMIGA	OPENED
NOV	28-DEC2	MON-FRI	CBM/PC/AMIGA	OPENED
DEC	5-9	MON-FRI	CBM/PC/AMIGA	OPENED
DEC	13-15	TUES-THUR	AMIGA/PC ONLY	OPENED
DEC	19-23	MON-FRI	CBM/PC/AMIGA	OPENED

**2****PARTS**

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SECTION 2

PARTS - PAGE 1

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21/2-0.0	INDEX - PARTS SECTION TECHTOPICS 21.
21/2-1.1	PARTS BACK ORDER STATUS.
21/2-2.1	NEW SERVICE PARTS PRICE BOOK 1988.
21/2-3.1	PARTS PRICE BOOK ERRATUS #1.
21/2-4.1	C64 POWER SUPPLY SPECIAL SALE.
21/2-5.1	PARTS PRICE INCREASE EFFECTIVE OCT. 1.

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21/2-1.1	PARTS BACK ORDER STATUS.
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PLEASE BE INFORMED THAT THE MANAGEMENT AT COMMODORE HAS MADE A DECISION TO CANCEL ALL BACK ORDERS PRIOR TO OCTOBER 1987. WE REALIZE THAT THIS COULD CAUSE SOME INCONVENIENCE AND WOULD LIKE TO APOLOGIZE AT THIS TIME.

IF THESE PARTS ARE STILL REQUIRED PLEASE DO NOT HESITATE TO CONTACT COMMODORE AND RE-ORDER.

21/2-2.1	NEW SERVICE PARTS - PRICE BOOK 1988.
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NEW 1988 SERVICE PARTS PRICE BOOK WAS MAILED TO ALL AUTHORIZED SERVICE CENTERS IN THE LAST WEEK OF MAY.

THE PARTS PRICE BOOK CONTAINS THREE SECTIONS.  
SECTION ONE LIST, SORTED BY PART NUMBER.  
SECTION TWO LIST, SORTED BY DESCRIPTION.  
SECTION THREE LIST, SORTED BY PART NUMBER WITHIN UNIT.

ONE ERRATUS SHEET WAS INCLUDED WITH 8 CORRECTIONS.



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SECTION 2

PARTS - PAGE 2

21/2-3.1 PARTS PRICE BOOK ERRATUS #1.

THIS ERRATUS SHEET WAS MAILED WITH PARTS PRICE BOOK.

- 1) PAGE 3 - PC10 CPU DIAG KIT 319984-01 CHANGE TO 314984-01
- 2) PAGE 3 - PC10 DRIVE DIAG KIT 319853-01 CHANGE TO 314853-01
- 3) PAGE 3 - 319984-01 PC10/COLT CPU DIAG CHANGE TO 314984-01
- 4) PAGE 22 - 319984-01 KIT PC10 CPU DIAG CHANGE TO 314984-01
- 5) PAGE 56 - 319984-01 KIT PC10 CPU DIAG CHANGE TO 314984-01
- 6) PAGE 69 - 902693-01 TRANS 2SC1815 DB IS 3.00, SR IS 5.00
- 7) PAGE 80 - C128 UNIT PARTS WAS NOT LISTED, DUPLICATE C128D APPEARS, INSERT FOLLOWING C128 COMPONENTS.

C128

PART NO.	DESCRIPTION	UNIT	CRRU	DB	SR
250735-02	KEYBOARD ASSY NTSC	C128		65.00	108.30
250754-01	LED ASSY	C128		2.40	4.00
250779-01	KEYBOARD W/GND STRAP	C128		37.50	62.25
251260-01	BUTTON - SPDT RESET	C128		1.50	2.50
251527-06	IC 8701F6 CLK GEN PAL/NTSC	C128		3.00	5.00
251527-07	IC 8701K6 CLK GEN NTSC	C128		3.00	5.00
251878-01	FILTER LINE ASSY	C128		3.60	6.00
251913-01	ROM C64 KERN/BASIC	C128		15.00	25.00
251917-02	MODULATOR	C128		12.00	20.00
251987-02	CASE TOP	C128		5.60	9.30
251988-02	CASE BOTTOM	C128		5.60	9.30
251993-01	FOOT SELF ADHESIVE	C128		.15	.25
252015-01	SHIELD TOP	C128		4.50	7.50
252016-01	CASE BOTTOM	C128		4.50	7.50
252017-01	INSULATION SHEET	C128		1.00	1.65
252024-01	CONN 9 PIN DIN RGBI	C128		4.00	6.55
252167-01	CONN 5 PIN SQUARE PWR	C128		2.40	4.00
252168-01	CABLE 8 PIN VIDEO SHEILD	C128		2.40	4.00
252182-01	SWITCH ROCKER PWR	C128		3.00	5.00
310379-02	PCB ASSY - EXCH	C128	40.00	140.00	
310389-01	IC 8722-R1 MMU	C128		20.00	33.35
310400-01	NAMEPLATE	C128		1.00	1.65
310407-01	SHEILD CAP	C128		4.50	7.50
310416-01	POWER SUPPLY	C128		42.50	70.80
310638-01	MANUAL USER SYS GUIDE	C128		8.00	13.25

\*\*\*\*\* CONTINUED ON PAGE 3 \*\*\*\*\*

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SECTION 2

PARTS - PAGE 3

21/2-3.1 PARTS PRICE BOOK ERRATUS #1. \* CONTINUED FROM P2 \*

PART NO.	DESCRIPTION	UNIT	CRRU	DB	SR
314098-01	KEY SINGLE ASSY - SPECIFY	C128		3.50	5.85
314131-01	KIT IC REPAIR - C128CPU	C128		55.00	91.60
314972-01	KIT ROM UPGRADE C128	C128		13.00	21.65
315009-01	IC 8564-R4 VIC	C128		15.50	25.80
315009-03	IC 8564-R5CA VIC	C128		15.50	25.80
315012-01	IC 8721-R3 PLA	C128		10.50	17.50
315014-04	IC 8563-R9 CRT CNTRL	C128		25.00	41.65
315020-01	IC 8502 MPU	C128		7.50	12.50
317430-01	DISKETTE CP/M DBL SIDED	C128		10.00	16.65
317435-01	DISKETTE TUTORIAL	C128		5.00	8.35
318018-04	ROM BASIC \$4000	C128		8.50	14.15
318019-04	ROM BASIC \$8000	C128		8.50	14.15
318020-05	ROM KERNAL \$C000	C128		8.50	14.15
318615-01	DISKETTE PACK SUB ASSY	C128		15.00	25.00
319773-01	MANUAL USER INTRO GUIDE	C128		4.00	6.65
326265-02	SHEILD BOX	C128		4.50	7.50
390059-01	ROM CHAR 8006 C128/C64	C128		8.50	14.15

8) PAGES 98, 99, 100 -

IN DESCRIPTION FIELD "EX" AND "EXCH" SHOULD NOT APPEAR. THERE IS NO CREDIT FOR RETURN OF THESE PARTS. ALL CBM BUSINESS PARTS ARE DIRECT PURCHASE.

21/2-4.1 C64 POWER SUPPLY SPECIAL SALE.

C64 POWER SUPPLIES, REGULARLY PRICED AT \$18.00 ARE NOW AVAILABLE AT \$15.00 IN CASE LOTS OF 16. SERVICE CENTERS SAVE \$48.00 FOR A LIMITED TIME. THIS SPECIAL SALE WILL BE IN EFFECT UNTIL SEPTEMBER 30, 1988.

21/2-5.1 PARTS PRICE INCREASE EFFECTIVE OCT. 1, 1988.

EFFECTIVE OCTOBER 1, 1988 ALL SERVICE PARTS PRICES WILL BE INCREASED. SERVICE CENTERS ARE ENCOURAGED TO PLACE THEIR ORDERS NOW.

A NEW REVISED PARTS BOOK WILL BE RELEASED AT THE END OF SEPTEMBER WITH THE NEW PRICING STRUCTURE.

**6****C-TOC**

SECTION 6

CTOC STATUS - PAGE 1

21/6-0.0 INDEX - CTOC SECTION TECHTOPICS 21.

21/6-1.1 CTOC INTRODUCTION.

21/6-1.2 CTOC APPLICATION.

21/6-1.1 CTOC INTRODUCTION.

C-TOC, COMMODORE TECH OP COMMUNICATIONS, THE SERVICE DEPARTMENTS' NEW BULLETIN BOARD IS NOW ON-LINE. ISSUE 21, HAS BEEN ACTIVE SINCE JUNE. SERVICE CENTERS WHO RETURNED THE FIRST APPLICATION SHOULD HAVE RECIEVED THEIR USER CODE, PASSWORD, AND THE 800 TELEPHONE NUMBER.

IF YOU HAVE NOT RETURNED YOUR APPLICATION, PLEASE COMPLETE AND RETURN THE ENCLOSED COPY.

THE BULLETIN BOARD IS FORMATED THE SAME AS TECHTOPICS. SEVERAL NEW SECTIONS HAVE BEEN ADDED.

SECTION 6, CONTAINS THE CURRENT SYSTEM STATUS AND ANY SYSTEM MESSAGES FROM THE CTOC-OPERATOR.

SECTION 7, ALLOWS USERS TO DOWNLOAD ANY TECHTOPIC SECTION OR ALL SECTIONS.

SECTION 8, ALLOWS USER TO TRANSMIT A MESSAGE TO THE CTOC OPERATOR. MESSAGES WILL BE ANSWERED AS SOON AS POSSIBLE. THE 800 TECH HOT LINE IS YOUR PRIMARY ACCESS TO SERVICE, CTOC MESSAGES SHOULD ONLY BE USED AS AN ALTERNATE PATH TO SERVICE.

SECTION 9, THE LOG SECTION ALLOWS USERS TO QUICKLY SCAN FOR ANY NEW POSTINGS SINCE YOUR LAST SIGN-ON.

FOR BEST RESULTS USE VT100 TERMINAL EMULATION. SET WORD LENGTH TO 8 BIT WORDS, NO PARITY, AND ONE STOP BIT.

PLEASE CONTACT H. BEACH EXT 9376 IF YOU ARE HAVING PROBLEMS ACCESSING THE SYSTEM. MOST PROBLEMS ARE DUE TO NOISE ACROSS THE PHONE LINES AND RE-DIALING CAN CORRECT THIS.

ISSUE 22, AUGUST 88 WILL BECOME THE CURRENT ON-LINE ISSUE WITH THE MAILING OF ISSUE 21.

ISSUE 22 WILL REMAIN ON-LINE UNTIL THE NEXT TECHTOPICS PRINT DATE, OCTOBER 1, 1988.

## 4

## CBM

ISSUE 21 - JUNE 88

SECTION 4

CBM - PAGE 1

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21/4-0.0 INDEX - CBM SECTION TECHTOPICS.

21/4-1.1 NEW DIAGNOSTIC DISK 1571/128D.

21/4-2.1 1802 MONITOR - WARRANTY FIX.

21/4-3.1 1084 MONITOR SERVICE MANUAL - PHILIPS TYPE.

21/4-3.2 ENCLOSURE: E21/4-3.2 1084 SERVICE MANUAL # 314890-01.

21/4-4.1 1802 MONITOR SERVICE MANUAL - DAEWOO TYPE.

21/4-4.2 ENCLOSURE: E21/4-4.2 1802 SERVICE MANUAL # 602155-85.

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21/4-1.1 NEW DIAGNOSTIC DISK 1571/128D.

A NEW DIAGNOSTIC PROGRAM DISKETTE WAS MAILED WITH JUNE 88 PARTS PRICE BOOK.

THE 1571/128D V1.2 DIAG DISKETTE, PN #314855-02 SHOULD BE USED AS A REPLACEMENT FOR THE ORIGINAL DISK WHICH WAS MAILED TO SERVICE CENTERS IN MARCH 88. IT WAS ENCLOSED WITH LATEST 1571/128D DISK DIAGNOSTIC KIT.

PLEASE USE THIS DISK FOR TESTING AND DISCARD THE ONE YOU PREVIOUSLY RECEIVED WITH YOUR KIT.

21/4-2.1 1802 MONITOR - WARRANTY FIX.

A NEW REPAIR KIT , WITH INSTRUCTIONS, IS AVAILABLE FOR FIELD SERVICE ON THE DAEWOO MODEL 1802 MONITOR. SYMPTOM IS A BLOWN FUSE.

PART NUMBER 314858-01, KIT-1802 DAEWOO MONITOR REPAIR, CONTAINS THE FOLLOWING COMPONENTS:

- 1) 602151-82 IC STR 54041, VOLTAGE REGULATOR.
- 2) 602156-21 SILICONE PAD.
- 3) 602156-22 BRACKET.
- 4) 602156-23 SCREW.
- 5) 602156-24 WASHER.
- 6) 602156-25 NUT.
- 7) INSTRUCTION SHEET WITH DIAGRAM.

\*\*\*\*\* CONTINUED ON PAGE 2 \*\*\*\*\*

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SECTION 4

CBM - PAGE 2

21/4-2.1 1802 MONITOR - WARRANTY FIX. \* CONTINUED FROM P1 \*

A REPAIR RATE OF \$23.50 WILL BE CREDITED FOR IN WARRANTY UNITS REQUIRING THIS FIX. PLEASE READ THE INSTRUCTIONS CAREFULLY, REFER TO DIAGRAM ENCLOSED WITH KIT.

- 1) DISCONNECT MONITOR FROM THE LINE VOLTAGE SOURCE.
- 2) REMOVE AND SAVE THE FIVE (5) SCREWS FROM REAR COVER.
- 3) UNSOLDER THE FIVE (5) LEADS OF THE REGULATOR IC.
- 4) REMOVE THE REGULATOR HEAT SINK ASSY BY REMOVING TWO (2) SCREWS FROM SOLDER SIDE OF THE PCB ASSY AND ONE (1) SCREW FROM THE REAR VIDEO INPUT BRACKET ASSY. SAVE THE THREE (3) SCREWS.
- 5) FROM THE REGULATOR HEAT SINK ASSY, REMOVE AND DISCARD, SCREW, AND MICA INSULATOR. RETURN DEFECTIVE REGULATOR TO PARTS DEPOT.
- 6) THOROUGHLY CLEAN THE HEAT SINK IN ORDER TO ELIMINATE ALL RESIDUE OF THE WHITE SILICONE GREASE.
- 7) PREPARE THE MODIFIED REGULATOR HEAT SINK ASSY PER DIAGRAM ENCLOSED WITH KIT. MOUNT THE PARTS USING THE ORIGINAL MOUNTING HOLE. TIGHTEN THE MOUNTING HARDWARE FIRMLY.
- 8) PERFORM A CONTINUITY CHECK FROM THE METAL FLANGE OF THE REGULATOR IC TO THE HEAT SINK.

\*\* NOTE: REGULATOR MUST BE ISOLATED FROM HEAT SINK.\*\*

- 9) INSTALL THE MODIFIED REGULATOR HEAT SINK ASSY USING THE THREE (3) SCREWS THAT WERE RETAINED FROM STEP 4.
- 10) SOLDER THE FIVE (5) REGULATOR IC LEADS AND TRIM THE EXCESS LEAD LENGTHS.
- 11) INSTALL THE REAR COVER USING THE FIVE (5) SCREWS RETAINED FROM STEP #2 ABOVE.
- 12) POWER THE MONITOR AND TEST FOR VIDEO RASTER.

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SECTION 4

CBM - PAGE 3

## 21/4-3.1 1084 MONITOR SERVICE MANUAL - PHILIPS TYPE.

SERVICE MANUAL 314890-01 CONTAINS SCHEMATICS FOR BOTH THE 1902A ON PAGE 11 AND THE 1084 ON PAGE 21. THE 1084 PHILIPS TYPE MONITOR USES CM8562 CASEWORK. CBM STOCKED PARTS ARE LISTED ON LAST PAGE. NOTE THE CONNECTOR 'A' ON PAGE 21, THIS REFERS TO 1084S-P, THE STEREO VERSION FROM PHILIPS. SCHEMATIC IS ON LAST PAGE.

NOTE: PAGE 19 - HOT GROUND OFF TS132 EMITTER IS NOT SHOWN.  
PAGE 20 - +12VB LINE OFF C232/R234 IS NOT SHOWN.

## 21/4-3.2 ENCLOSURE: E21/4-3.2 1084 SERVICE MANUAL # 314890-01.

1084 PHILIPS TYPE MONITOR SERVICE MANUAL # 314890-01, MAILED TO AUTHORIZED SERVICE CENTERS WITH TECHTOPICS 21, JULY 88.

## 21/4-4.1 1802 MONITOR SERVICE MANUAL - DAEWOO TYPE.

1802 DAEWOO TYPE MONITOR (NTSC) PN# 602155-85. CONTAINS OEM SPECIFICATIONS, SCHEMATICS AND ADJUSTMENT PROCEDURES FOR 1802 DAEWOO MONITOR.

## 21/4-4.2 ENCLOSURE: E21/4-4.2 1802 SERVICE MANUAL # 602155-85.

1802 DAEWOO MONITOR SERVICE MANUAL # 602155-85, MAILED TO AUTHORIZED SERVICE CENTERS WITH TECHTOPICS 21, JULY 88.

# MARCH 1988 ISSUE 20



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## 1 INFO

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- 1-0.0 INDEX - INFO SECTION TECHTOPICS ISSUE 20 MARCH 88.
  - 1-1.1 NO CREDIT ISSUED FOR NON-REPAIRABLE UNITS.
  - 1-2.1 INSTALLATION OF HARDWARE ADD-ON KITS FOR END USERS.
  - 1-3.1 IN WARRANTY REPAIR REQUIREMENTS.
  - 1-4.1 COMMODORE SERVICE POLICY.
  - 1-5.1 TEST SYSTEMS AVAILABLE TO SERVICE CENTERS.
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## 2 PARTS

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- 2-0.0 INDEX - PARTS SECTION TECHTOPICS ISSUE 20 MARCH 88.
  - 2-1.1 CURRENT SERVICE KIT CONTENTS.
  - 2-2.1 PARTS UPDATE - ISSUE 20, MARCH 1988.
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## 3 AMIGA

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- 3-0.0 INDEX - AMIGA SECTION TECHTOPICS ISSUE 20 MARCH 88.
  - 3-1.1 A2000 SYSTEM CLOCK FIX.
  - 3-1.2 ATTACHMENT - A2000 POWER SUPPLY REFERENCE SCHEMATIC.
  - 3-1.3 ATTACHMENT - A2000 POWER SUPPLY BOARD LAYOUT.
  - 3-2.1 FLAT PACK CHIP EXTRACTOR.
  - 3-3.1 A1020 DISK DRIVE FIX FOR A500 OPERATIONS.
  - 3-3.2 ATTACHMENT - A1020 DISK DRIVE SCHEMATIC # 328171.
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## 4 CBM

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- 4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 20 MARCH 88.
  - 4-1.1 1541-II SERVICE MANUAL ADDENDUM # 314861-01
  - 4-1.2 ENCLOSURE: 20/4-1.2 - 1541-II ADDENDUM.
  - 4-2.1 1750/1764 SCHEMATICS # 312534 / 311752
  - 4-2.2 ENCLOSURE: 20/4-2.2 - 1750/1764 SCHEMATICS.
  - 4-3.1 1084 MONITOR SCHEMATICS - OEM REFERENCE.
  - 4-3.2 ENCLOSURE: 20/4-3.2 - 1084 MONITOR SCHEMATICS.
  - 4-4.1 NEW DIAGNOSTIC - 1571/128D DIAGNOSTICS # 314855-01.
  - 4-4.2 ENCLOSURE: 20/4-4.2 - 1571/128D DIAG MANUAL W/ DISK
  - 4-5.1 1581 FLOPPY DISK CONTROLLER 1772 - AVAILABILITY.
  - 4-6.1 C64 B3 PCB EXCHANGE
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## 5 PC

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- 5-0.0 INDEX - PC SECTION TECHTOPICS ISSUE 20, MARCH 88.
  - 5-1.1 PC10-III SERVICE MANUAL ADDENDUM # 314859-01
  - 5-1.2 ENCLOSURE: 20/5-1.2 - PC10-III ADDENDUM.
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# 1

## INFO

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- 1-0.0 INDEX - INFO SECTION TECHTOPICS ISSUE 20 MARCH 88.
  - 1-1.1 NO CREDIT ISSUED FOR NON-REPAIRABLE UNITS.
  - 1-2.1 INSTALLATION OF HARDWARE ADD-ON KITS FOR END USERS.
  - 1-3.1 IN WARRANTY REPAIR REQUIREMENTS.
  - 1-4.1 COMMODORE SERVICE POLICY.
  - 1-5.1 TEST SYSTEMS AVAILABLE TO SERVICE CENTERS.
- 

- 1-1.1 NO CREDIT ISSUED FOR NON-REPAIRABLE UNITS.

COMMODORE WILL RETURN ALL PRINTED CIRCUIT BOARDS AND DRIVE ASSEMBLIES CLASSIFIED AS NON-REPAIRABLE UNITS.

YOU MAY NOT RETURN UNITS WITH, BUT NOT LIMITED TO, ANY OF THE FOLLOWING:

- 1) UNITS CONTAINING OIL, SOFT DRINKS, COFFEE OR ANY FOREIGN SUBSTANCE.
- 2) PRINTED CIRCUIT BOARDS WHICH:
  - A) ARE CRACKED BURNED, OR BROKEN.
  - B) HAVE MISSING COMPONENTS AND/OR PARTS.
  - C) HAVE LIFTED TRACES/PADS DUE TO SOLDERING OR OTHER MODIFICATIONS.
- 3) CANNIBALIZED UNITS, BOARDS OR SUB-ASSEMBLIES.
- 4) DISK DRIVE ASSEMBLIES WITH EXPOSED, NICKED OR CUT WIRES.
- 5) UNITS CONTAINING ANY UNAUTHORIZED INSTALLED MODIFICATIONS.

**1-2.1      INSTALLATION OF HARDWARE ADD-ON KITS FOR END USERS.**

COMMODORE SERVICE RECOMMENDS THAT AUTHORIZED SERVICE CENTERS PERFORM ALL INSTALLATIONS, AND TESTS OF HARDWARE ADD-ON KITS FOR YOUR CUSTOMERS. THERE IS NO RECOMMENDED INSTALLATION FEE.

WARNING: AS STATED IN INSTALLATION GUIDES.

COMMODORE WILL NOT BE RESPONSIBLE FOR ANY DAMAGE TO EITHER THE COMPUTER OR THE KIT CAUSED BY IMPROPER INSTALLATION OF THE KIT. SUCH IMPROPER INSTALLATION WILL VOID THE WARRANTIES ON BOTH THE COMPUTER AND THE KIT COMPONENT HARDWARE.

**1-3.1      IN-WARRANTY REPAIR REQUIREMENTS.**

ALL SERVICE CENTERS AUTHORIZED BY COMMODORE FOR WARRANTY REPAIRS MUST COMPLY WITH WARRANTY POLICIES.

AUTHORIZED SERVICE CENTERS ARE REQUIRED TO SERVICE ANY COMMODORE PRODUCT, WITHIN THE PRODUCT LINES FOR WHICH THEY ARE QUALIFIED, IF THE CUSTOMER CAN PROVIDE A VALID PROOF OF WARRANTY, REGARDLESS OF PLACE OF PURCHASE.

REFUSAL TO SERVICE ANY VALID IN-WARRANTY CLAIM MAY RESULT IN CANCELLATION OF YOUR SERVICE CONTRACT.

**1-4.1      COMMODORE SERVICE POLICY**

COMMODORE WILL NOT BE RESPONSIBLE FOR, OR PROVIDE TECHNICAL SUPPORT FOR IMPROPER OPERATION OF THIRD PARTY APPLICATION SOFTWARE RESULTING FROM NEW HARDWARE REVISIONS AND DESIGNS, OR NEW OPERATING SYSTEM ENVIRONMENTS.

THIRD PARTY APPLICATION SOFTWARE VENDORS ARE RESPONSIBLE FOR MODIFYING THEIR SOFTWARE WHEN A HARDWARE UPGRADE IS INTRODUCED OR THE OPERATING SYSTEM IS UPGRADED.

## 1-5.1 TEST SYSTEMS AVAILABLE TO SERVICE CENTERS.

SERVICE CENTERS ARE NOW ABLE TO PURCHASE THE EQUIPMENT LISTED BELOW. CENTERS ARE LIMITED TO TWO UNITS OF EACH TYPE AND UNITS ARE NOT FOR RESALE (UNITS WILL BE MARKED NOT FOR RESALE).

CPUS:	C128D	\$425.00
	PC10-III	TBA*
	A500	\$489.00
	A2000	\$1296.00
DISK DRIVES:	1541-II	\$161.00
	1571	\$197.00
	1581	\$163.00
MONITOR:	1084	\$260.00
MODEMS:	C1670	TBA*
	A1680	\$92.00

( TBA\* : TO BE ANNOUNCED )

THESE UNITS MAY BE ORDERED THROUGH THE 800 PARTS NUMBER AND WILL BE AVAILABLE THE END OF MARCH.

## 2

## PARTS

- 
- 2-0.0 INDEX - PARTS SECTION TECHTOPICS ISSUE 20 MARCH 88.
- 2-1.1 CURRENT SERVICE KIT CONTENTS.
- 2-2.1 PARTS UPDATE - ISSUE 20, MARCH 1988.
- 

2-1.1 CURRENT SERVICE KIT CONTENTS.

THE FOLLOWING LIST DETAILS THE CURRENT CONTENTS OF SERVICE KITS. THIS LIST UPDATES PAGES 1 AND 2 IN BLUE PARTS BOOK 6/87.

314020-07 KIT MASTER STARTUP 600.00  
INCLUDES:

314020-04 CBM STARTUP KIT  
314020-05 AMIGA STARTUP KIT  
314020-06 PC STARTUP KIT

314020-04 KIT CBM STARTUP 450.00  
INCLUDES:

314001-03 C64/C64C SERVICE MANUAL  
314001-08 C128/C128D SERVICE MANUAL  
314002-01 1541 SERVICE MANUAL  
314002-04 1571 SERVICE MANUAL  
314982-01 1581 SERVICE MANUAL  
314136-01 1802/1802C TECH DATA  
314004-03 1902 SERVICE MANUAL  
314004-04 1902A SERVICE MANUAL  
314003-05 MPS803 SERVICE MANUAL  
319907-01 MPS1000 SERVICE MANUAL  
601210-19 MPS1200 SERVICE MANUAL

326070-01 C64 DIAG ASSY W/MANUAL  
CONTAINS:

314061-01 C64 DIAG CARTRIDGE  
314061-02 C64/128D DIAG ASSY (CONN USER)  
314061-03 C64 DIAG ASSY (CONN KYBRD)  
314061-04 C64/128/128D DIAG CABLE ASSY  
314061-05 C64 DIAG MANUAL

314060-02 C128/C128D ADD-ON W/MANUAL  
CONTAINS:

314061-06 C128/C128D DIAG CARTRIDGE  
314061-07 C128 DIAG ASSY (CONN KYBRD)  
314987-01 C128D DIAG ASSY (CONN KYBRD)

## SERVICE KITS - CONTINUED

## 314020-04 KIT CBM STARTUP - CONTINUED

314051-01 1541 DIAG DISK V2.0 W/MANUAL  
 314855-02 1571 DIAG DISKETTE V1.2  
 314855-03 1571 DIAG MANUAL V1.2  
 970016-01 48 TPI ANALOG ALIGN DISK  
 314854-02 1581 DIAG DISKETTE V1.5  
 314854-03 135 TPI ANALOG ALIGN DISK  
 314854-04 1581 DIAG MANUAL V1.5

314020-05 KIT AMIGA STARTUP 225.00  
INCLUDES:

314038-02 A1000 SERVICE MANUAL  
 314981-01 A500 SERVICE MANUAL  
 314135-01 A2000 SYSTEM SCHEMATICS  
 314041-01 1080 SERVICE MANUAL  
 314041-02 1080A SERVICE MANUAL  
 314983-01 A1300 GENLOCK SERVICE MANUAL  
  
 317629-01 A1000 TEST DEMO DISKETTE  
 314966-01 A1000 ALIGN PROG DISKETTE V1.0  
 314966-02 A500/A2000 ALIGN PROG DISK V1.1  
 314967-02 AMIGA A1000/A500/A2000 ALIGN INSTR  
 314968-01 AMIGA ALIGN DIGILOG DISK

314020-06 KIT PC STARTUP 225.00  
INCLUDES:

319914-01 PC10-1/2 SERVICE MANUAL  
 314970-01 1901 SERVICE MANUAL  
  
 314984-01 PC10 CPU DIAG KIT W/ INSTR  
 314853-01 PC10 DRIVE DIAG KIT W/INSTR

314965-02 KIT AMIGA ALIGN V 2.0 100.00  
INCLUDES:

314966-01 A1000 ALIGN PROG DISK V 1.0  
 314966-02 A500/A2000 ALIGN PROG DISK V 1.1  
 314967-02 AMIGA A1000/A500/A2000 INSTRUCTIONS  
 314968-01 AMIGA ALIGN DIGILOG DISK

## SERVICE KITS - CONTINUED

314065-01	KIT AMIGA SERVICE A1000	375.00
INCLUDES:		
	327137-01 PCB ASSY A1000 (100.00 CRRU)	
	327173-01 POWER SUPPLY ASSY	
	327063-01 KEYBOARD ASSY	
	327124-01 MOUSE ASSY	
	327156-01 DRIVE ASSY	
	327059-01 KEYBOARD CABLE	
	327177-01 A1050 RAM EXP CART	
	314066-01 DIAGNOSTIC AIDE	
314067-02	KIT IC REPAIR	125.00
INCLUDES:		
	318070-01 FAT AGNUS 8370 R3	
	252127-02 PAULA 8364 R7	
	252126-02 DENISE 8362 R8	
	318072-01 GARY 5719	
	318029-02 8520 R4 1MHZ	
	318075-02 BUSTER	
314058-01	KIT DISK DIAG 1541/CPU	85.00
INCLUDES:		
	314051-02 DIAG DISK W/MANUAL 2.0	
	970016-01 48 TPI ANALOG ALIGN DISK	
314855-01	KIT DISK DIAG 1571/128D	85.00
INCLUDES:		
	314855-02 DIAG DISK 1571/C128D V 1.2	
	314855-03 DIAG MANUAL 1571/C128D V 1.2	
	970016-01 48 TPI ANALOG ALIGN DISK	
314854-01	KIT DISK DIAG 1581	85.00
INCLUDES:		
	314854-02 DIAG PROG DISK 1581 V1.5	
	314854-03 DIAG ANALOG DISK 1581 135 TPI	
	314854-04 DIAG MANUAL 1581 V1.5	
314131-01	KIT IC REPAIR - C128 CPU	55.00
INCLUDES:		
	251527-07 IC 8701K6 CLK GEN NTSC	
	315009-01 IC 8564 R4 VIC	
	315012-01 IC 8721 R3 PLA	
	315014-04 IC 8563 R9 CRT CONTROLLER	
	315020-01 IC MPU 8502	

## SERVICE KITS - CONTINUED

314130-01	KIT IC REPAIR - C64 CPU	48.00
INCLUDES:		
	251527-01 IC 8701 CLK GEN	
	906107-01 IC MPU 6510	
	906108-02 IC 6526A CIA	
	906109-04 IC 6567 VIC	
	906112-01 IC 6581 SID	
	906114-01 IC PLA	
314133-01	KIT IC REPAIR 1541B/1571N	65.00
INCLUDES:		
	251828-01 IC GATE ARRAY 40 PIN	
	251853-01 IC R/W HYBRID	
	251968-02 ROM 1541B DOS	
	310653-01 IC 65C22A	
	310654-05 ROM 1571 DOS	
	901435-01 IC MPU 6502 1MMHZ	
	906108-02 IC 6526A CIA	
314132-01	KIT IC REPAIR 1541A/N SHORT	16.00
INCLUDES:		
	325572-01 IC GATE ARRAY	
	901229-05 ROM 1541 \$E000-\$FFFF	
	901435-01 IC MPU 6502 1MHZ	
	901437-01 IC 6522 VIA	
314972-01	KIT ROM UPGRADE C128	13.00
INCLUDES:		
	318018-04 ROM BASIC LOW (U33)	
	314019-04 ROM BASIC HIGH (U34)	
	314020-05 ROM KERNAL (U35)	
319984-01	KIT PC10 CPU DIAGNOSTICS	125.00
CONTAINS:		
	PC PROGRAM DISKETTE	
	SYSTEM TEST DISKETTE #1	
	SYSTEM TEST DISKETTE #2	
	INSTRUCTION BOOKLET	
	SERIAL PORT CONNECTOR	
	PARALLEL PORT CONNECTOR	
314853-01	KIT PC10 DRIVE ALIGNMENT	125.00
INCLUDES:		
	314853-02 PC10 DIAG PROG DISK W/INSTR.	
	314853-03 PC10 DIAG ANALOG DISKETTE	



318042-01	KIT PC10 HARD DRIVE MOUNTING	10.00
INCLUDES:		
	380124-01 SUB CHASSIS HARD DISK (1)	
	380125-01 PLATE HOLDING HARD DRIVE (2)	
	312219-01 SHOCK ABSORBER RUBBER (4)	
	905655-04 WASHER LOCK EXT TOOTH M4 (4)	
	907272-06 WASHER FLAT M4.3 (4)	
	906800-03 SCREW PHL PAN HD M3 X 8 (8)	
314060-01	C128/C128D DIAG ASSY W/MANUAL (COMPLETE)	130.0
INCLUDES:	(NOTE: NOT CLASSIFIED AS A KIT)	
	314061-02 C64/128/128D DIAG ASY (CONN USER POR	
	314061-04 C64/128/128D DIAG ASSY (CABLE ASSY)	
	314061-06 C128/C128D DIAG CARTRIDGE	
	314061-07 C128 DIAG ASSY (CONN KYBRD)	
	314987-01 C128D DIAG ASSY (CONN KYBRD)	

2-2.1 PARTS UPDATE - ISSUE 20, MARCH 1988

PLEASE MAKE THE FOLLOWING UPDATES TO YOUR  
BLUE PARTS BOOK 6/87.

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
1540002-01	SUB: 251868-01				
251053-02	SUB: 251053-10				
251828-01	SUB: 251828-03				
251828-03	IC 40 PIN GATE ARRAY	1571/1541B	7.50	12.	
251868-01	POWER SUPPLY ASSY	1541B	21.00	35.	
251968-03	ROM	1541III			
251987-01	SUB: 251987-02				
251987-02	CASE TOP	C128	5.60	9.	
252083-01	SUB: 252083-02				
252095-01	SUB: 252095-04				
252095-04	MANUAL USERS	1571	4.00	6.	
310416-05	SUB: 310416-01				
310510-01	SUB: 310510-05				
310510-03	SUB: 310510-05				
310651-02	IC LSI FDC 1772	1571/1581	25.00	41.	
312550-01	DRIVE ASSY 3.5 FLOPPY	1581	100.00	166.	
312554-01	DRIVE ASSY 3.5 FLOPPY	A500	100.00	166.	
314001-02	SUB: 314001-03				
314001-03	MANUAL - SERVICE C64/C64C	DIAG	20.00	25.	
314001-09	MANUAL - SERVICE C16	DIAG	15.00	25.	
314020-04	KIT CBM STARTUP	DIAG	450.00		
314020-05	KIT AMIGA STARTUP	DIAG	225.00		
314020-06	KIT PC STARTUP	DIAG	225.00		
314020-07	KIT MASTER STARTUP	DIAG	600.00		
314139-01	CARTRIDGE DIAG C64 DT	DIAG	25.00		
314139-02	MANUAL DIAG C64 DT	DIAG	15.00		
314851-01	CABLE RGB	1084	20.00		
314853-01	KIT PC10 DRIVE ALIGNMENT	DIAG	125.00		
314853-02	DISK DIAG PROG PC W/INST	DIAG	75.00		
314853-03	DISK DIAG ANALOG PC	DIAG	75.00		
314854-01	KIT DISK DIAG 1581	DIAG	85.00		
314854-02	DISK DIAG PROG 1581 V1.5	DIAG	15.00		
314854-03	DISK ANALOG 1581 135 TPI	DIAG	75.00		
314854-04	MANUAL DIAG 1581 V1.5	DIAG	15.00		
314855-01	KIT DISK DIAG 1571/128D	DIAG	85.00		
314855-02	DISK DIAG 1571/C128D V1.2	DIAG	15.00		
314855-03	MANUAL DIA 1571/C128D V1.2	DIAG	15.00		

## 2-2.1 PARTS UPDATE - CONTINUED

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
314885-88	TECH SUBSCRI- CBM/AMIGA/PC	DIAG		129.95	
314886-88	TECH SUBSCRIPT - PC	DIAG		69.95	
314887-88	TECH SUBSCRIPT - AMIGA	DIAG		89.95	
314888-88	TECH SUBSCRIPT - CBM	DIAG		29.95	
314965-01	SUB: 314965-02				
314965-02	KIT AMIGA ALIGN V 2.0	DIAG		100.00	
314966-01	DISK ALIGN PROG A1000 V1.0	DIAG		20.00	
314966-02	DISK ALIGN PROG A500 V1.1	DIAG		20.00	
314967-02	MANUAL DIA ALIGN AMIGA 1.1	DIAG		15.00	
314968-01	DISK ALIGN DIGILOG AMIGA	DIAG		75.00	
315818-01	SOFTWARE PAC	A2000		25.00	
318011-03	**NO LONGER AVAILABLE**	SUB: 318029-03			
325566-12	OSC 28.63636 MHZ X1	A2000		5.00	8.
326166-02	SUB: 326166-04				
326166-03	SUB: 326166-04				
327137-01	PCB ASSY - MAIN W/OS RAM	A1000	100.00	200.00	
340031-01	POWER SUPPLY 1541-II	1541-II		30.00	49.
340503-01	PCB ASSY 1541-II	1541-II	40.00	80.00	
351523-01	BRACKET - (NEWT) 1541II	1541-II		5.00	8.
351523-02	BRACKET - (CHINON) 1541II	1541-II		5.00	8.
353307-01	KNOB (LEVER 02.9) (NEWT)	1541-II		2.50	4.
353307-02	KNOB (LEVER) (CHINON)	1541-II		2.50	4.
353307-03	KNOB (LEVER) (NEWT)	1541-II		2.50	4.
353307-04	KNOB (LEVER 03.0) (NEWT)	1541-II		2.50	4.
353308-01	BEZEL (NEWT)	1541-II		3.60	6.
353308-02	BEZEL (CHINON)	1541-II		3.60	6.
353412-01	CASE - TOP	1541-II		6.00	10.
353413-01	CASE - BOTTOM	1541-II		6.00	10.
354139-01	MANUAL USER	1541-II		4.00	6.
359800-08	DISKETTE DEMO C64	1541-II		5.00	8.
359800-09	DISKETTE DEMO 1551/1541	1541-II		5.00	8.
359901-01	DRIVE ASSY NEWT D500	1541-II	40.00	80.00	
359902-01	DRIVE ASSY CHINON FZ501	1541-II	40.00	80.00	
604020-50	DOOR/LATCH/LEVER ASSY NEWT	1541		15.00	25.
604060-05	ZERO TRK ASSY (ALPS)	1571		5.25	8.
906109-01	IC 6567 VIC	C64		15.50	25.
906109-04	SUB: 906109-01				

## 4

## CBM

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4-0.0 INDEX - CBM SECTION TECHTOPICS ISSUE 20 MARCH 88.

4-1.1 1541-II SERVICE MANUAL ADDENDUM # 314861-01.

4-1.2 ENCLOSURE: 20/4-1.2 - 1541-II ADDENDUM.

4-2.1 1750/1764 SCHEMATICS # 312534 / 311752

4-2.2 ENCLOSURE: 20/4-2.2 - 1750/1764 SCHEMATICS.

4-3.1 1084 MONITOR SCHEMATICS - OEM REFERENCE.

4-3.2 ENCLOSURE: 20/4-3.2 - 1084 MONITOR SCHEMATICS.

4-4.1 NEW DIAGNOSTIC - 1571/128D DIAGNOSTICS # 314855-01.

4-4.2 ENCLOSURE: 20/4-4.2 - 1571/128D DIAG MANUAL W/ DISK

4-5.1 1581 FLOPPY DISK CONTROLLER 1772 - AVAILABILITY.

4-6.1 C64 B3 PCB EXCHANGE

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4-1.1 1541-II SERVICE MANUAL ADDENDUM # 314861-01

NEW UPDATE FOR 1541-II FLOPPY DISK DRIVE. PLEASE  
INSERT INTO YOUR 1541 SERVICE MANUAL. NOTE, THIS  
ADDENDUM UPGRADES 1541 SERVICE MANUAL TO PART  
NUMBER 314862-01.

4-1.2 ENCLOSURE: 20/4-1.2 - 1541-II ADDENDUM  
ENCLOSED WITH TECHTOPICS ISSUE 20, MAILED MARCH 1988.

4-2.1 1750/1764 SCHEMATICS # 312534 / 311752.

SCHEMATIC DIAGRAMS FOR 1750 AND 1764 RAM EXPANSION  
MODULES. NOTE, RAM EXP CONTROLLER WAS ADDED TO  
PARTS LIST IN DECEMBER TECHTOPICS.

4-2.2 ENCLOSURE: 20/4-2.2 - 1750/1764 RAM EXP SCHEMATICS.  
ENCLOSED WITH TECHTOPICS ISSUE 20, MAILED MARCH 1988.

4-3.1 1084 MONITOR SCHEMATICS - OEM REFERENCE.

SCHEMATIC DIAGRAMS FOR PHILIPS TYPE 1084 MONTIOR.  
MORE TECHNICAL DATA TO BE RELEASED AS SOON AS  
IT BECOMES AVAILABLE.

4-3.2 ENCLOSURE: 20/4-3.2 - 1084 MONITOR SCHEMATICS.  
ENCLOSED WITH TECHTOPICS ISSUE 20 , MAILED MARCH 1988.

- 4-4.1 NEW DIAGNOSTIC - 1571/128D DIAGNOSTICS # 314855-01.  
NEW DIAGNOSTIC DISKETTE WITH MAUNAL FOR 1571, C128D.
- 4-4.2 ENCLOSURE: 20/4-4.2 - 1571/128D DIAG MANUAL W/ DISK.  
ENCLOSED WITH TECHTOPICS ISSUE 20 , MAILED MARCH 1988.
- 4-5.1 1581 FLOPPY DISK CONTROLLER 1772 - AVAILABILITY.  
WESTERN DIGITAL 1772 FLOPPY DISK CONTROLLER IC HAS  
BEEN RECIEVED IN PARTS. REFER TO TECHTOPICS ISSUE 18  
4-1.1 FOR DETAILS ON 1581 REPAIR FIX.  
CBM PART NUMBER IS 310651-02.  
WARRANTY LABOR RATE OF \$20.00 STILL APPLIES TO THIS  
FIX.
- 4-6.1 C64 B3 PCB EXCHANGE  
NOTE: WITH NEW C64C UNITS ONLY THE B3 AND E TYPE  
PCB'S WILL FIT IN NEW STYLE CASEWORK. YOU  
WILL NOT BE ABLE TO USE A OR B TYPE PCB'S.

**TECHTOPIC**  
**1987 REPRINTS**  
**PN #314866-01**



***TECHTOPICS ISSUE 16 — RELEASED MARCH 87***

***ENCLOSURES*** — PC10-1/2 SERVICE MANUAL  
1902A SERVICE MANUAL  
1571 V1.1 C128 DIAG DISK W/ MANUAL  
C128 DIAG EPROM

***TECHTOPICS ISSUE 17 — RELEASED AUGUST 87***

***ENCLOSURES*** — A500 POWER SUPPLY SCHEMATICS (2)  
A1300 GENLOCK SERVICE MANUAL  
A500 SERVICE MANUAL  
1901 SERVICE MANUAL  
C128D ADDENDUM  
C128 POWER SUPPLY SCHEMATICS (2)  
1581 SERVICE MANUAL  
MPS803 SERVICE MANUAL  
1802 MONITOR SCHEMATICS (2)

***TECHTOPICS ISSUE 18 — RELEASED NOVEMBER 87***

***ENCLOSURES*** — 1802 MONITOR SERVICE PARTS LIST (2)  
A2000 SYSTEM SCHEMATICS  
AMIGA ALIGNMENT PROG DISK A500/  
A2000 W/ MANUAL  
C128D BOARD LAYOUT REPRINT  
C64C ADDENDUM  
C128/C128D DIAG EPROM

***TECHTOPICS ISSUE 19 — RELEASED DECEMBER 87***

***NO ENCLOSURES IN THIS ISSUE***

**NOTE:** NO ENCLOSURES HAVE BEEN INCLUDED WITH THESE REPRINTS. STARTING WITH ISSUE 17 SERVICE CENTERS WHERE SENT ONLY ENCLOSURES FOR THE PRODUCT LINES THEY ARE AUTHORIZED FOR.

**ENCLOSURES INCLUDED IN THIS ISSUE**

- 1) 1351 MOUSE Schematics
- 2) C128 ROM Revisions
- 3) C64 B3 PCB Schematics

**SERVICE MANUALS INCLUDED IN THIS MAILING**

- 1) 1902A Service Manual
- 2) 1571 Diagnostic Kit V1.1, with diskette and manual
- 3) C128 Diagnostic EPROM update
- 4) New Checksum page for C128 Diagnostic Manual

**REMINDER TO CQS CENTERS**

Please do not give Technical Administration or the Tech Hot Line telephone numbers to end users. Customers should be referred to the customer support group at (215) 436-4200.

**CORRECTIONS TO SERVICE TELEPHONE LISTINGS**

Bruce Mortensen, Operations Manager, cannot be reached via the 800 Tech Hot Line. Please use extension 9297.

John DiMeo, Technical Specialist, is available on the 800 Tech Hot Line for technical assistance. John's correct extension is 9235.

Rob Taylor has joined the Hot Line staff. Rob will be on line until 6 PM E.S.T. to allow west coast service centers an additional hours access.

Halsey Beach, Documentation, can be reached at extension 9678.

**VIC EXCHANGE KIT -- PART NUMBER 314975-01**

VIC 20 2 Pin Power Supplies (902502-01) are no longer available. Both the power supply above and the VIC 20 2 Pin PCB Assy (324003-02) are now cross referenced to the VIC Exchange Kit (314975-01). This kit contains:

- 1) VIC 20 PCB Assy 250403-02 -- 5 Pin PCB
- 2) VIC 20 Power Supply 251053-02 -- 5 Pin

Dealer cost for this kit is \$30.00

Suggested retail price is \$50.00

**C128 DIAGNOSTIC EPROM UPDATE**

Enclosed is the latest C128 Diagnostic EPROM - Version 789010. Please install in the C128 diagnostic cartridge and return the old EPROM to:

Commodore Business Machines  
Service Department  
Attn: Bruce Mortensen  
1200 Wilson Drive  
West Chester, PA 19380

**NEW CHECKSUM TABLE FOR C128 DIAGNOSTIC MANUAL**

Please replace page 1-6 in your Diagnostic Manual with the enclosed copy. It has been updated with the new ROM revision checksums detailed in this Tech Topics.

### **C128 ROM UPDATE KIT - PART NUMBER 314972-01**

New ROMs for C128 are available under the above part number. See C128 ROM update section of this issue for particulars. This kit contains the following:

- 1) 318018-04 Basic Low (U33)
  - 2) 318019-04 Basic High (U34)
  - 3) 318020-05 Kernel (U35)
- Dealer cost for this kit is \$25.00  
Recommended installation fee is \$15.00  
Suggested retail price is \$41.50

### **NEW RELEASE 1571 DIAGNOSTIC KIT VER. 1.1 — PART NUMBER 314973-01**

Enclosed kit includes 1571 Diagnostic Diskette Version 1.1  
Part Number 314974-01 with Instruction Manual.

### **NEW ROM 1571 - PART NUMBER 310654-05**

This ROM replaces 310654-03.

### **NEW ROM 1541B - PART NUMBER 251968-02**

This ROM replaces 251968-01

### **C64 DIAGNOSTIC REVISIONS - 6526 CIA (8521)**

The C64 diagnostic cartridge is currently being revised. An invalid flag -U2 Interrupt Bad- occurs if an 8521 complex interface adapter was installed during manufacturing. The 8521 is currently being manufactured with a 6526X (206A) designation.

### **1902A SERVICE MANUAL — OEM PART NUMBERS**

The 1902A Service Manual enclosed with this Tech Topics contains OEM part numbers. An Addendum will be issued in the next Tech Topics to cross reference these part numbers to CBM part numbers. It is important to note that CBM part number designations do not indicate their availability from CBM Parts Department.

### **PC10 HARD DRIVE MOUNTING ACCESSORIES KIT — PART NUMBER 314976-01**

A kit containing hardware necessary for mounting third party hard drives will be available shortly. This kit will not contain a power cable or a ribbon cable. The contents of the kit is as follows:

- |                             |           |
|-----------------------------|-----------|
| 1) Sub Chassis Hard Disk    | 380124-01 |
| 2) Plate Holding Hard Disk  | 380125-01 |
| 3) Shock Absorber Rubber    | 312219-01 |
| 4) Shock Absorber Rubber    | 351103-01 |
| 5) Screw PHL Pan Hd M4 x 18 | 906810-09 |
| 6) Washer Lock Ext Tooth M4 | 905655-04 |
| 7) Washer Flat M4.3         | 907272-06 |
| 8) Screw PHL Pan Hd M3 x 8  | 906800-03 |
| 9) Washer Lock Ext Tooth M3 | 905652-04 |

Dealer cost for this kit is not available presently.



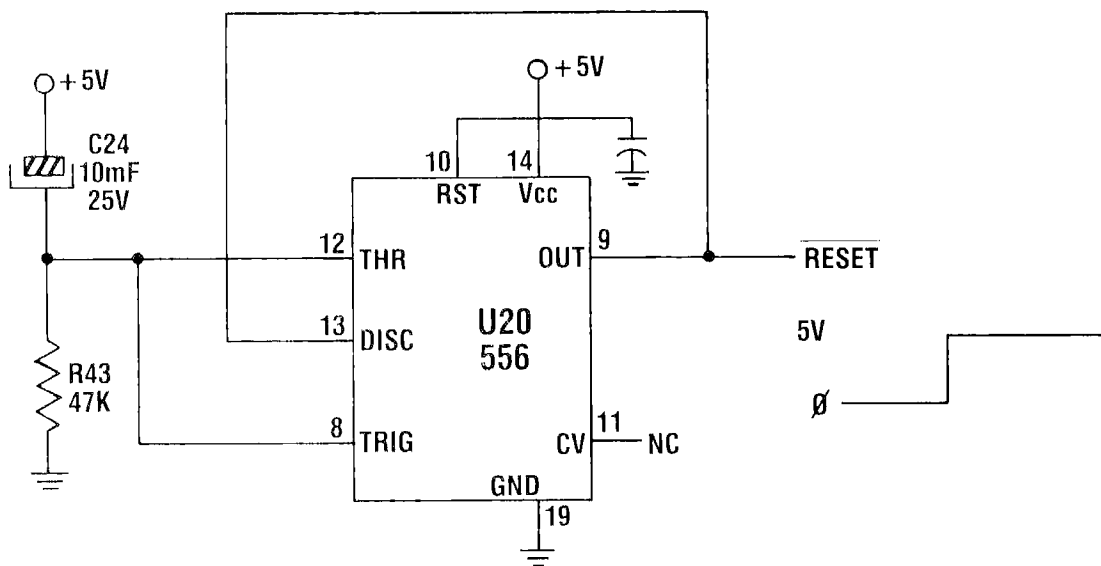
### **C64 RESET MODIFICATION ON OLD 5 PIN PCB'S**

The 800 Tech Line has received several calls on the redesigned reset circuit on the older 5 Pin C64 PCB Assy. The PCB's with the modification can be identified by jumper wire across Pins 12 (Threshold) and 8 (Trigger) on U20.

The Diagram below shows the RC Timing Circuit used to set the output state of the reset line. With C24 (10mF) discharged and the high resistance value of R34 (47K), current will flow allowing a 5V potential to exist on Pins 8 and 12 resetting the one shot, asserting the reset line "Low". As C24 charges, the five volt potential will drop towards zero, setting the one shot, negating the reset line (High).

#### **NOTE**

DUE TO THE DESCENDING FIVE VOLT POTENTIAL ON THE INPUT, THE OUTPUT OF THE ONE SHOT CIRCUIT IS COMPLEMENTED, ELIMINATING THE NEED FOR U8 (7406 OPEN COLLECTOR INVERTER).



# COMMODORE ENHANCED 1351 MOUSE

This device is a hand held unit that will supply input for cursor position relative to mouse position for the Commodore 128 and Commodore 64 computers.

The enhanced mouse is controlled by an 18 pin CMOS Gate Array, MICKEY183. There are two modes of operation, Joystick Mode and Mouse Mode. In either mode there are two quadrature inputs for both "x" and "y". These input signals are converted into a directional signal and a movement signal.

## JOYSTICK MODE

Any mouse movement is converted into a pulse on one of four output lines, J up, J down, J right, J left. Each of these output lines is asserted for approximately 20ms after mouse movement is detected. See Figure 1.

## MOUSE MODE

In Mouse Mode the device is interfaced directly to the Pot lines on the SID. This provides a path to present 6 bits of position information for both x and y directly into the processor memory map without any processor overhead. The following functions are performed in this mode.

- Detect the sync signal and synchronize to it.
- Assert the appropriate pot signals at sometime in the middle of the SID conversion cycle.
- De-assert the Pot signals prior to the end of the SID conversion cycle.

## MICKEY183

As input to the MICKEY183 two sets of optically isolated sensors (encoders) supply quadrature inputs XQ0, XQ1, YQ0, and YQ1. Other inputs supplied to the MICKEY183 include: Two normally open switches for button control, +5 volts from host computer, a 4 MHz clock and a processor sync signal from the host computer. The outputs to the host computer; joy up, joy down, left, right, joy button as well as pot x and y are incorporated with a proprietary software driver that translates the supplied signals into real time cursor position relative to slider position.

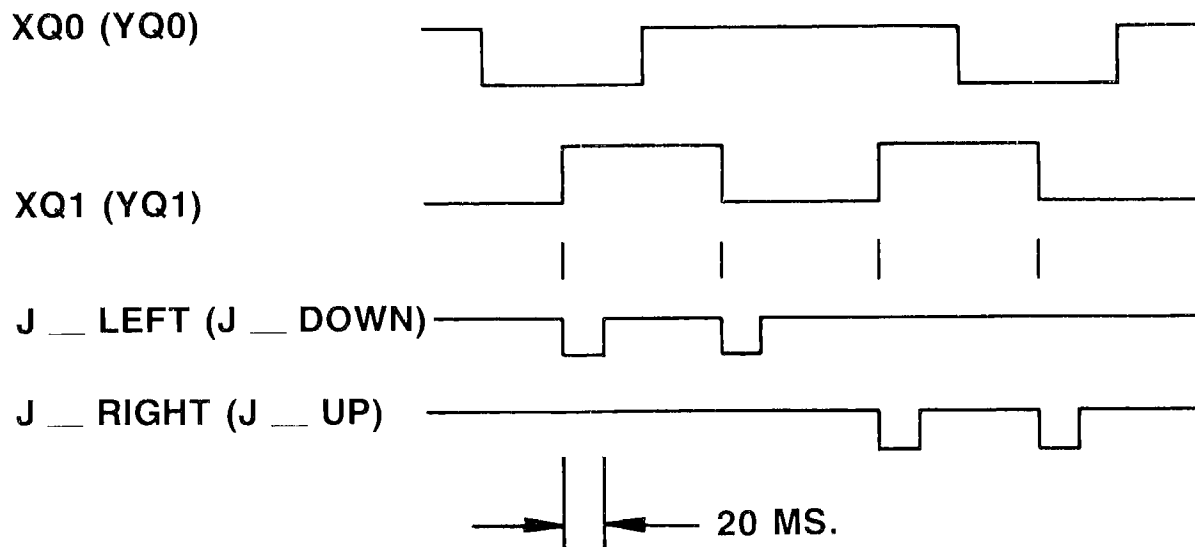
## TABLE 1 — PIN DESCRIPTION

PIN	SIGNAL	DESCRIPTION
1	XQ0	Quadrature input for X direction. If XQ1 leads, direction is right. If XQ1 lags XQ0, direction is left.
2	XQ1	
3	YQ0	Quadrature input for Y direction. If YQ1 leads YQ0, direction is up.
4	YQ1	
5	Right	Right side button signal from mouse to indicate mode selection. It is internally pulled up to Vcc.
6	Sync	External signal used for synchronizing device clock with SID conversion cycle.
7	OSCI	4MHZ oscillator input.
8	OSCO	4MHZ oscillator output.
9	GND	Ground.
10	Reset	Power-up reset. Utilizes internal 100K pull-up resistor.
11	Test	When in test mode is connected to Vcc “1”-bypasses internal divide by four “O” counter enables divide by four counter.

**NOTE: ALL OUTPUTS PINS 12-17 ARE OPEN COLLECTOR**

12	Pot Y	Joystick Mode — Right button output. Mouse Mode — Horizontal movement.
13	Pot X	Joystick Mode — Not used. Mouse Mode — Vertical movement.
14	Joy Left	Joystick Mode — Indicates Leftward movement. Mouse Mode — Not used.
15	Joy Right	Joystick Mode — Indicates rightward movement. Mouse Mode — Not used.
16	Joy Down	Joystick Mode — Indicates downward movement.
17	Joy Up	Joystick Mode — Indicates upward movement.
18	Vcc	+5VDC

## JOYSTICK MODE TIMING



*FIGURE 1*

Joystick mode operates by creating 20 millisecond active low pulses on the appropriate joystick lines when the mouse is moved. Movement is defined as when XQ1 or YQ1 change state. XQ0 and YQ0 are used merely to assist in the detection of direction when XQ0, or YQ0 change state.

Should the mouse move such that transitions on the Q1 signals occur at a rate faster than 20 MS., then the appropriate line will remain grounded. In this sense, the joystick outputs act as if they are being driven by retriggerable monostable multivibrators.

Note that the 20 ms. time need not be exact, and in the 1351 design it is specified as 20 ms  $\pm$  1 ms.

This diagram is also useful for showing the phase relationships of the quadrature input signals.

# MOUSE MODE OPERATION: KEY TIMING EVENTS

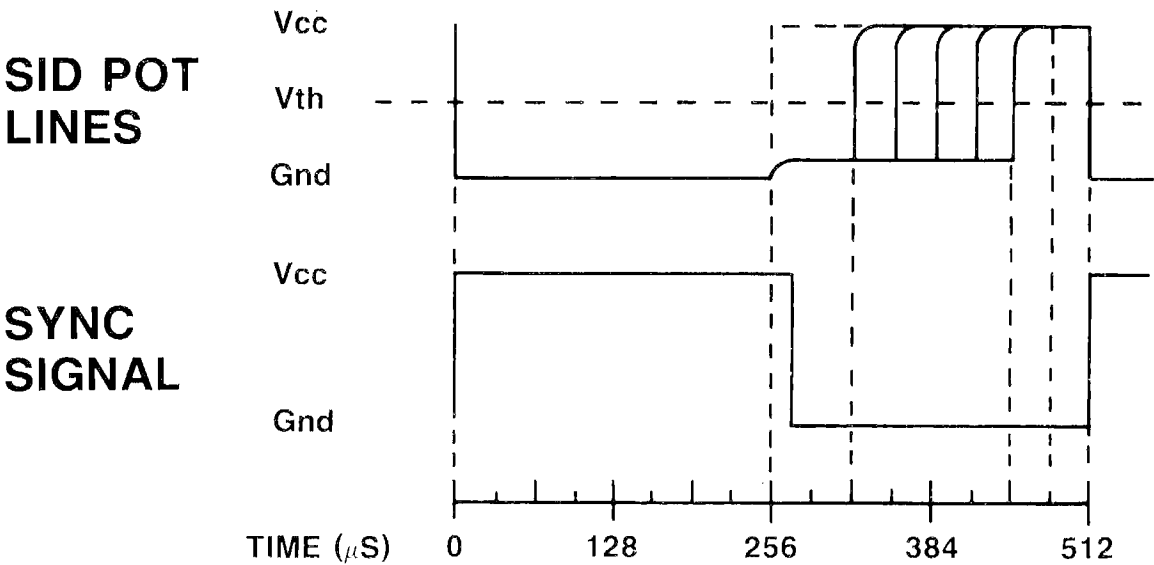


FIGURE 2

TIME (μS)	FUNCTION
0	SID clamps POT lines to ground. Sync line rises. Chip senses rising edge of sync and starts timing.
256	SID release POT lines, SYNC circuitry pulls line slightly high to establish SYNC signal.
320-448	Chip drives POT lines high anywhere from 320 μs to 448 μs after rising edge of sync. The exact time is a function of the mouse position MOD 64, which is transitted as a time with a resolution of 2 μs via this transition
480	Chip stops driving lines 480 μs after rising edge of SYNC. This occurs 32 μs before start of next SID cycle. POT lines remain high due to 1000pf capacitor inside CPU.
512	SID starts next conversion cycle.



**FIGURE 3 — BLOCK DIAGRAM**

## C128 ROM RELEASE

Modifications have been made to 318018-02 BASIC LOW, 318019-02 BASIC HIGH, 318020-03 Editor, Code. The new ROM part numbers are as follows:

16KB ROM Set (Socket number valid for original PCBs)

- 1) 318018-04 BASIC LOW \$4000-\$7FFF, U33 CKSUM = 9A40
- 2) 318019-04 BASIC HIGH, Monitor \$8000-\$BFFF, U34 CKSUM = 6F80
- 3) 318020-05 EDITOR, KERNEL, CP/M \$C000-\$FFFF, U35 CKSUM = EEC4
- 4) 315078-03 DIN ED, KERNEL, CP/M \$C000-\$FFFF, U35 CKSUM = E4C4

32KB ROM Set (#2 below contains C64 Code)

- 1) 318022-02 BASIC, Monitor \$4000-\$BFFF, U34 CKSUM = 09C0
- 2) 318023-02 EDITOR, KERNEL, CP/M \$C000-\$FFFF, U32 CKSUM = F324

This ROM set replaces the current set entirely, they are not to be mixed. Each ROM contains a revision status byte (at \$7FFE, \$BFFE, \$CFFE). Original ROMs contain \$00 in these locations, the update ROMs contain \$01.

The following changes have been implemented:

### PART NUMBER 318018-04 —BASIC LOW (\$4000-\$7FFF)

1. LIST and DELETE commands. Previously they did not report as errors certain non-numeric characters passed as arguments, such as 'LIST A'. This has been corrected totally in-line by adjusting an erroneous relative branch in the 'RANGE' subroutine.
2. CIRCLE command. Previously an unspecified Y-radius defaulted to the X-radius (as it should), but the X-radius value had already been scaled for the X-axis and not the Y-axis. This has been corrected totally in-line by scaling the radii after the defaults have been established.
3. RS-232 Status. Previously accessing ST after RS-232 I/O resulted in an incorrect status being returned from, and a zero written to, location \$10A14, possibly corrupting the BASIC variable area. This was a result of BASIC calling the Kernel routine 'READSS' with the incorrect RAM bank in context. This has been corrected totally in-line by substituting the correct BASIC subroutine call.
4. CHAR command. Previously using CHAR with the 80-column text screen (GRAPHIC mode 5) resulted in RAM corruption at locations \$D600 and \$D601 of RAM bank 0 (the BASIC text bank) due to BASIC calling the Editor PLOT routine without the I/O block in context. This has been corrected utilizing two patch subroutines.
5. RENUMBER command. Previously the pass 2 routine, which was to pre-scan BASIC text and report 'out of memory' errors prior to actually changing anything, was seriously flawed. This has been corrected utilizing a patch subroutine.
6. DELETE command. Previously did not limit-check itself when moving down BASIC text, therefore it was possible to crash when DELETEing lines at or near the top of memory (near the MMU configuration registers). This has been corrected utilizing a patch subroutine. Also, DELETE previously exited to MAIN via 'JMP', effectively ending the evaluation of the current command string. This has been corrected by substituting an 'RTS', allowing direct commands like 'DELETE 10: PRINT"DELETED LINE 10"', to work correctly.

7. PLAY command. Previously the SID frequency tables were not exactly NTSC concert pitch. Also, there was no provision for adjusting the frequency for PAL systems. This has been corrected by changing the (NTSC) frequency tables, creating new PAL tables, and utilizing patch code to select from the appropriate table as determined by the Kernel PAL NTSC flag.
8. The BASIC ERROR handler previously failed to clear pending string temporaries when an error was TRAPed. This has been corrected via patch code to reset TEMPT to TEMPST.
9. The powerup copyright notice has been updated to 1986, which will serve as an immediate visual indication of the ROM update status. Also, a new notice has been placed at \$7FC0.
10. The ROM signature at location \$7FFC and \$7FFD (lo/hi) is \$8DEF. (new since last release.)
11. The ROM revision byte at location \$7FFE, has incremented from \$00 to \$01.
12. The ROM checksum byte at location \$7FFF, has changed from \$4C to \$61.

#### **PART NUMBER 318019-04 —BASIC HIGH, MONITOR (\$8000-\$BFFF)**

13. RSPRITE and RSPPOS functions. Previously they accepted as parameters sprite numbers in the range of 1-16, which is incorrect. This has been corrected totally in-line by limiting the range check to 1-8, and reporting an illegal quantity error for sprite numbers outside this range.
14. PRINT USING command. Previously there was an anomaly involving the use of floating money symbols ('\$') and commas. The command 'PRINT USING "#,##\$.##"; 123.45', for example, resulted in the output '\$,123.45', which is incorrect. This has been fixed utilizing a patch subroutine which checks specifically for the '\$', occurrence and substitutes a ' ' (\$' (' ' = fill character) whenever found.
15. Relative Coordinates for all graphic commands (except MOVSPR) were incorrectly processed. The problem was apparent when negative relative coordinates were used, which resulted in an illegal quantity error. This has been corrected totally in-line by substituting a different subroutine call to pre-existing code. This change affects the BASIC commands LOCATE, DRAW, PAINT, BOX, CIRCLE, GSHAPE, and SSHAPE. This change also allows negative absolute coordinates to be accepted (previously they resulted in an illegal quantity error), although the legal range remains a 16-bit value: 0-65535 (unsigned) or -32768 to 32767 (signed: i.e., -1 is equivalent to 65535).
16. DOPEN and APPEND commands. Previously it was possible to open two or more disk channels with the same logical file number without incurring an error report. This has been corrected totally in-line.
17. MATH package. An original bug fix (ref: double zero bug) to the (F)MULT routine has been found to result in small errors (such as  $2^{15} = 32768.0001$ ). This has been corrected totally in-line by fixing the original (dbl-0) problem in a different way.
18. A copyright notice has been placed, starting at \$BFC0.
19. The ROM signature at location \$BFFC and \$BFFD (lo/hi) is \$CDC8. (new since last release.)
20. The ROM revision byte at location \$BFFE, has incremented from \$00 to \$01.
21. The ROM checksum byte at location \$BFFF, has changed from \$3A to \$C5.



## **PART NUMBER 318020-05 —EDITOR, KERNEL, CP/M (\$C000-\$FFFF)**

22. CAPS LOCK Q. Previously an error in a key matrix decode table caused a lower-case 'Q' to be passed when the keyboard is in CAPS LOCK mode. The table has been corrected by substituting the correct value for upper-case 'Q'.
23. FUNCTION KEYS. Previously the function key handler, part of the SCNKEY routine at CKIT2, failed to detect a function key string pending. This has been corrected via patch routine, which will ignore new function key depressions until the string in progress has been output (i.e., KYNDX = 0). Also, DOPFKY now exits via SCNRTS, instead of simply RTSing.
24. IOINIT system initialization. Previously the RS-232 pseudo-6551 registers were not initialized because these values are expected to be given by the user whenever RS-232 channels are OPENed. Apparently many C64 users have taken advantage of the fact the C64 'happened' to clear these locations and fail to specify critical parameters. These RS-232 registers are now initialized to default to: no parity, full duplex, 3-line, 1-stop bit, 8-bit words and 300 baud, via a patch subroutine.
25. IOINIT PAL system initialization. Adjustments have been made to the 8563 initialization values for PAL systems. The PAL horizontal total (register 0) changes from \$7E to \$7F. The PAL vertical total (register 4) changes from \$27 to \$26. These changes shift the cycle time from 20.320us to 20.032us. The patch required a patch subroutine, as well as a change to VDCTBL.
26. BASIN system call. Previously attempting input from a logical channel to the screen (e.g., via INPUT#) resulted in line too long errors. This has been corrected utilizing a subroutine patch to preserve bit-7 of CRSW, which serves as a flag to the Editor that a (pseudo) end-of-line has been reached. Also, TBLX is copied to LINTMP to correctly locate the current cursor line for the Editor. Please note that switching between the 40 and 80-column text screens, opening and closing windows, or clearing text screens can confuse logical screen channels. The Editor variable LINTMP (\$A30) is a global, not local, variable as it should have been. Users can POKE LINTMP with the logical screen line number before INPUT#'s as a work-around.
27. OPEN RS-232 system call. Previously it was possible to receive a carry-set status, normally indicating an error, when no error existed after OPENing an RS-232 channel. This has been corrected totally in-line by a modification to the code which checks for the proper X-line hardware states.
28. LOAD system call. Previously the normal (a.k.a. SLOW) load mechanism did not preserve the starting address of any LOADs, which made the BASIC 'BOOT "file"', command form malfunction unpredictably. This is apparent only when used with 1541 drives. This has been corrected via a patch subroutine, which saves the starting address of all LOAded files at SAL and SAH, the same place the fast (a.k.a. BURST) load mechanism does.
29. DMA system call. Previously the Kernel forced the I/O block into the user's memory configuration at all times, which is no longer necessary and, in fact, seriously limits the functionality of the RAM expansion cartridge. This has been corrected by a ROM patch routine, which affects all Kernel DMA system calls as well as the BASIC FETCH, STASH, and SWAP commands. Also, previously it was possible for an IRQ to occur between the 'arm DMA' and 'trigger DMA' sequences, resulting in a DMA operation with the system configuration in context regardless of desired configuration. This has

been corrected by adding 'PHP/SEI...PLP' instructions around the JSR to DMA RAM code at \$3F0. Applications using the DMA RAM code at \$3F0 should do likewise. Finally, in this patch changes were made to enable DMA operations to all RAM banks by correctly using The VIC bank pointer found in the MMU RAM configuration register (\$D506, VA16 = bit-6 and VA17 = bit-7). Applications using the Kernel routine at \$FF50 will inherit these changes automatically. Please note that NMI interrupts can screw-up DMA operations, as they cannot be masked.

30. A copyright notice has been placed, starting at \$CFC0.
31. The ROM location \$CFF8 is reserved for national character ROM checksums. This does not apply to US ROMs, which contain \$FF here. (new since last release.)
32. The ROM location \$CFF9 is now reserved for country codes. The US ROMs contain \$FF here. (new since last release.)
33. The ROM location \$CFFA and \$CFFB (lo/hi) contain the national character set signature. This does not apply to US ROMs, which contain \$FFFF here. (new since last release.)
34. The ROM signature at location \$CFFC and \$CFFD (lo/hi) is \$8F76. (new since last release.)
35. The ROM revision byte at location \$CFFE, has incremented from \$00 to \$01.
36. The ROM checksum byte at location \$CFFF, has changed from \$C3 to \$3C.
37. The Kernel revision byte at location \$FF80 has incremented from \$00 to \$01.

#### **PART NUMBER 315078-03 —DIN ED, KERNEL, CP/M (\$C000-\$FFFF)**

There have been no revisions to the national portions of the many national Kernel/Editor ROMs. All revisions described above for the US version have also been made to the national versions.

38. A copyright notice has been placed, starting at \$CFC0.
39. The ROM location \$CFF8 is reserved for national character ROM checksums. The German/Austrian (DIN) ROMs contain a \$FF here (that really is the checksum!).
40. The ROM location \$CFF9 is now reserved for country codes. The German/Austrian (DIN) ROMs contain \$00 here. US ROMs contain \$FF here.
41. The ROM location \$CFFA and \$CFFB (lo/hi) contain the national character set signature. The DIN ROMs contain \$91F3 here. This is unused (\$FFFF) for US ROMs.
42. The ROM signature at location \$CFFC and \$CFFD (lo/hi) is \$EA3B.
43. The ROM revision byte at location \$CFFE, has incremented from \$00 to \$01.
44. The ROM checksum byte at location \$CFFF, has changed from \$C3 to \$4C.
45. The Kernel revision byte at location \$FF80 has incremented from \$00 to \$01.

# AMIGA TECHTOPICS

## I — AMIGA TECHTOPICS

### AMIGA ENCLOSURES IN THIS ISSUE

- 1) Enclosed please find first release of the new A500 Service Manual, part number 314981-01.
- 2) Reference Schematics A500 Power Supplies — Speedy Tech and Dee Van types.

**PLEASE NOTE:** Power supply schematics are "*For Reference Only*". The A500 Power Supply is an exchange item, Commodore will not authorize componet level repairs or stock any componet parts.

- 3) Enclosed please find first release of the new A1300 Genlock Service Manual, part number 314983-01.

- 4) Amiga Field Service Training Update

Amiga A500/A2000 Service Training Classes have been completed in Boston, Atlanta, Chicago and Dallas.

Confirmations of reservations for Los Angeles and Sunnyvale will be mailed in about one week.

**NOTE:** Full product line service training will begin sometime in October. There will be a nominal charge of \$100.00 per day for these classes. Schedule to be announced.

- 5) Important Genlock Warranty Information

Customers with early Revision Amiga A1000's which have not been upgraded to Revision 6 Denise, and/or Revision 5 Agnus may encounter the following:

A) In Hi Res mode old revision Denise may display a one pixel wide color glitch on the screen boundary.

B) Old revision Agnus chips may cause Genlock to lock on the wrong frame.

Authorized Service Centers may upgrade customer units to Revision 6 Denise and/or Revision 5 Agnus at no charge to customers. Provided customer has a valid proof of purchase for the A1300 Genlock.

Commodore will pay the standard warranty repair rate of \$40.00 to the Service Center. The Service Center must return the two chips for credit and include a copy of the customer's proof of purchase with the NARDA Form.

**NOTE:** For out of warranty exchange the unit may be returned to Commodore with a check for \$95.00, if sent direct from the customer.

The cost of the exchange if returned by the Service Center is \$75.00. You must include check with returned unit.

# AMIGA TECHTOPICS

## I — AMIGA TECHTOPICS

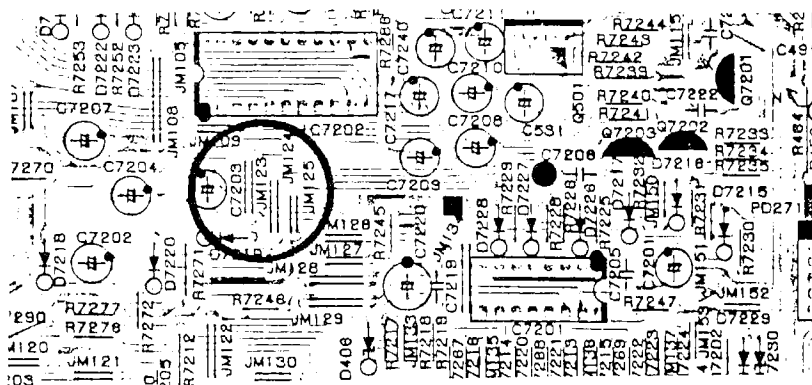
### AMIGA ENCLOSURES IN THIS ISSUE (Continued)

#### 6) 1902 to 1080 Conversion

Customers with 1902 Monitors may have their units upgraded to operate the same as an Amiga 1080 Monitor with the following rework.

**NOTE:** This rework should be done by authorized Service Centers only and is offered as an alternative to purchasing a new Amiga monitor. Commodore does not assume any responsibility for damage to the monitor resulting from this conversion.

- A) Remove rear cover. Locate shields in rear left corner of main PCB. Remove shields on both top and bottom of PCB. Locate jumpers JM123, JM124, and JM125. Install jumpers and replace shield.
- B) Locate opening for RGB select switch on lower rear of back cabinet. The monitor select switch is unable to slide to the RGB position due to the size of the opening. With a square rat tail file, carefully file the opening to the right. This will allow the switch to be moved to the third position of the switch, RGB analog.
- C) Diagram of Jumper Locations



#### 7) A500/A2000 Technical Reference Manual

New 275 page reference manual that describes the technical features of the A500 and A2000. This manual may be purchased through the Developers Group. Cost is \$40.00 plus \$2.50 for shipping. Send check or money order to:

Commodore Business Machine  
Attn: Lauren Brown  
1200 Wilson Drive  
West Chester, PA 19380

**NOTE:** If you attended the A500/A2000 Service Training you will receive a free copy with your certificate in a few weeks.

## COMMODORE TECHTOPICS

### *III — COMMODORE TECHTOPICS*

#### COMMODORE CONSUMER PRODUCT ENCLOSURES IN THIS ISSUE

- 1) Enclosed please find first release of the new C128D Service Manual Addendum. This section should be added to the C128 Service Manual. The part number for this manual is 314980-01.

Contained in this addendum are IC specifications for the following:

- 8580 Sid, part number 318013-01
- 8568 80 Column CRT Controller, part number 315092-01
- Floppy disk drive read/write amplifier, part number 252308-01

- 2) C128D Diagnostic Update Information

A new diagnostic EPROM update will be available soon. It will be sent to all authorized Service Centers at no charge.

Connecting cables to modify the C128 Diagnostic Cartridge will be available in the C128D Diagnostic Connector add-ons kit, part number 314138-01.

This kit will contain 2 parts:

- C128D Keyboard Diagnostic Connector, part number 314987-01
- C128D Cassette Diagnostic Cable, part number 314988-01

The cost of this kit is not available at this time.

- 3) Reference Schematics For C128 Power Supplies

- Mitsumi type, part number 252449-01
- Dee Van type, part number 252449-03

The enclosed power supply schematics for the C128 Power Supplies are "*For Reference Only*". The C128 Power Supply is an exchange item. Commodore Service will not authorize componet repairs or stock any componet parts.

# COMMODORE TECHTOPICS

## III — COMMODORE TECHTOPICS

### COMMODORE CONSUMER PRODUCT ENCLOSURES IN THIS ISSUE (Continued)

- 4) Enclosed please find first release of new 1581 Service Manual, part number 314982-01.

**PLEASE NOTE:** 1581 Diagnostic Kit, part number 314854-01, will be available soon. This kit will contain a Diagnostic Program Diskette with manual and an Analog Alignment Diskette.

- 5) 1581 Service Information

Intermittent problems may occur on some 1581 3.5 disk drives due to a grounding problem on pin 10 of IC10, the 74LS193. Consult page 18 in the 1581 Service Manual included in this mailing, the decoupling drawing shows pin 10 as being grounded, this may not be the case.

A warranty repair rate of \$20.00 will be paid to authorized Service Centers for correcting this problem by connecting pin 10 to the ground plane on the under side of the PCB assembly.

**NOTE:** Service Center must supply both serial number of the unit plus serial number of the PCB assembly, if present on PCB, with the NARDA form.

Because this problem is on the system clock it is not possible to cite specific symptoms in most cases. However on disk intensive operations a "Device Not Present" message may be encountered.

- 6) C64 Diagnostic Assembly Update Information

The C64 Diagnostic Cartridge, part number 314061-01, contains 4, 110K ohm resistors. Due to changes in chip specifications for later model C64C these resistors should be replaced with 4, 121K ohm resistors to avoid an invalid error flags on SID rev4 and the 6526 (206A).

- 7) 1802/1802C Monitor Schematics

Enclosed in this mailing are PCB Schematics for the 1802 Dae Woo and 1802C Goldstar monitors. Complete service manuals are not available at this time. Parts lists for this to service these products will be mailed soon. Please consult Hot Line Technicians for additional assistance.

## COMMODORE TECHTOPICS

### III — COMMODORE TECHTOPICS

#### COMMODORE CONSUMER PRODUCT ENCLOSURES IN THIS ISSUE (Continued)

##### 8) Modem Exchange Information

Modems are exchange items. The Service Center or the customer may obtain a warranty exchange by returning the defective modem to the parts depot with a copy of the customer's sales receipt.

Out of warranty exchanges will be honored for the following modems at the prices indicated:

Product	Cost if Returned By Service Center	Cost if Returned By Customer
1600	\$25.00	\$35.00
1660	\$35.00	\$55.00
1670	\$45.00	\$65.00
1680	\$75.00	\$95.00

9) Enclosed please find new MPS 803 Service Manual, part number 314003-05.

10) Enclosed please find C64E PCB Schematic. Please use part number 250469-01 to order this PCB.

11) **SPECIAL NOTE:** When exchanging a PCB, keep the top RF Shield! Parts does not supply the top RF Shield with the replacement board.

## SERVICE PARTS

### *IV — SERVICE PARTS UPDATE*

The following corrections and additions should be made to the Commodore Confidential Parts Information Blue Book issued 6/1/87.

#### 1) PARTS LIST ERRATUS

- 1540038-01 — PCB Assembly 2031 — Should be HP (High Profile), not LP.
- 252146-01 — IC 8520 CIA: Use #318029-02.
- 251643-01 — Drive Assembly — NEWT credit is \$40.00. Dealer billing is \$80.00, no suggested retail.
- 251643-03 — Drive Assembly — NEWT WHT/HM 1541C credit is \$40.00. Dealer billing is \$80.00, no suggested retail.
- 312594-01 — A500 Drive Assembly: Change to #312554-01. Dealer billing is \$95.00.
- 314065-01 — Amiga Service Kit: \$100 Credit is for A1000 Main PCB Assembly exchange only.
- 314976-01 — PC10 HD Mounting Kit: New part number is #380042-01.
- 325519-01 & 02 — Should not sub to -03 (03 is SX64)
- 326189-02 — Cable RF Long: Sub to #326189-01.
- 327137-01 — A1000 PCB Assembly: Credit is \$100.00. Dealer billing is \$200.00.
- 390205-01 — Power Supply C64 (1764 — Ram Exp). Dealer billing is \$42.50, suggested retail is \$70.80.
- 601161-74 — EPROM 27256: Dealer billing is \$10.00.
- 601201-22 — Delete this number.
- **NOTE:** Cost for all printer ribbons is now \$5.00.



## SERVICE PARTS

### *IV — SERVICE PARTS UPDATE*

The following additional parts should be added to the Commodore Confidential Parts Information Blue Book issued 6/1/87.

#### 2) PARTS LIST ADDITIONS

- 314986-01 2002 Monitor Service Manual  
**NOTE:** 2002 Monitor is the same as the 1080 Monitor. 2002 Service Manual is not included in this mailing.

**NOTE:** 2002 is shipped in 2 versions:  
2002-23 contains RGB Cable #328192-02.  
2002-89 contains RGBI Cable #390099-01.

- 314004-04 — 1902A Service Manual \$20.00.
- 317607-01 — PC10 Diskette Dos System 3.2.
- 317607-02 — PC10 Diskette GW Basic 3.2.
- 380258-03 — PC10 IC Bios Eprom 27128.
- 319905-01 — PC10 Dos 3.2 Manual.
- 319906-01 — PC10 GW Basic 3.2 Manual.
- 318814-01 — PC10 User Guide.
- 602061-57 — 1701 Monitor — Variable Resistor. Dealer billing is \$1.50.
- 602060-39 — 1701 Monitor — Variable Resistor. Dealer billing is \$1.00.
- 602062-78 — 1701 Monitor — IC HA1141. Dealer billing is \$3.50.
- 602060-74 — 1701 Monitor — PCB Assembly (AC). Dealer billing is \$20.00.
- 602060-22 — 1701 Monitor — PC Magnets. Dealer billing is \$3.50.
- 602060-73 — 1701 Monitor — PCB Assembly (PWR). Dealer billing is \$31.50.
- 602060-71 — 1701 Monitor — PCB Assembly (CRT). Dealer billing is \$25.50.

# NOV 87

## ISSUE 18

### **1** INFO

- 1-1.1 CURRENT WARRANTY LABOR RATE
- 1-1.2 ATTACHMENT: 18/1-1.2 NEW WARRANTY RATES
- 1-2.1 CHANGE OF ADDRESS
- 1-3.1 NEW ADDRESS FOR NARDA FORMS
- 1-4.1 VIC 20 PCB ASSY RETURN POLICY
- 1-5.1 TECH HOT LINE USAGE

### **2** PARTS

- 2-1.1 PARTS ERRATUS AND ADDITIONS  
REPRINT FROM ISSUE 17
- 2-2.1 A2000 PARTS ADDITIONS
- 2-3.1 A2088, A2052, A2090 PARTS ADDITIONS
- 2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS
- 2-4.2 ENCLOSURE: 18/2-4.2 1802 MONITOR  
SERVICE MANUAL PARTS LIST
- 2-5.1 1802C DAEWOO MONITOR PARTS ADDITIONS
- 2-5.2 ENCLOSURE: 18/2-5.2 1802C MONITOR  
SERVICE MANUAL PARTS LIST
- 2-6.1 PARTS UPDATE — ISSUE 18, NOV 87

### **3** AMIGA

- 3-1.1 A2000 SYSTEM SCHEMATICS
- 3-1.2 ENCLOSURE: 18/3-1.2 PN 314135-01  
A2000 SYSTEM SCHEMATICS
- 3-2.1 A500/A2000 ALIGNMENT INSTRUCTIONS
- 3-2.2 ENCLOSURE: 18/3-2.2 AMIGA  
ALIGNMENT INSTRUCTION SHEETS
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ALIGNMENT PROGRAM DISKETTE V1.1
- 3-3.1 1902 TO 1080 CONVERSION ERRATUS
- 3-4.1 FIX — A1000 KEYBOARD
- 3-5.1 REPAIR TIP: IC/SOCKET CONTACT PROBLEMS

### **4** CBM

- 4-1.1 1581 FDD REPAIR TIP
- 4-2.1 ERRATUS: C128D BOARD LAYOUT
- 4-2.2 ENCLOSURE: 18/4-2.2 C128D  
BOARD LAYOUT FOR PCB ASSY #250477
- 4-3.1 C64C ADDENDUM: B-3, E VERSIONS
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PN #314856-01
- 4-4.1 C128/C128D DIAGNOSTIC EPROM
- 4-4.2 ENCLOSURE: 18/4-4.2 C128D DIAGNOSTIC EPROM

### **5** PC

- 5-1.1 INSTALLATION TIP: ATI VIDEO CARD
- 5-1.2 REPRINT: PAGE 53 PC OPERATORS MANUAL
- 5-1.3 REPRINT: PAGE 30 PC OPERATORS MANUAL
- 5-2.1 REPAIR TIP: PARITY ERRORS
- 5-3.1 COMPUTE EFFECTIVE ADDRESS
- 5-4.1 PC10 (1-2-III) DISK DRIVE DIAGNOSTIC
- 5-5.1 PC10-1, PC10-2 MEMORY MAP

### **6** CSIN

- 6-1.1 COMMODORE SERVICE INFORMATION  
NETWORK PREVIEW

# 1

## INFO

### SERVICE INFORMATION SECTION

- 1-1.1 CURRENT WARRANTY LABOR RATE
- 1-1.2 ATTACHMENT: 18/1-1.2 CURRENT WARRANTY RATES
- 1-2.1 CHANGE OF ADDRESS
- 1-3.1 NEW ADDRESS FOR NARDA FORMS
- 1-4.1 VIC 20 PCB ASSY RETURN POLICY
- 1-5.1 TECH HOT LINE USAGE

#### 1-1.1 CURRENT WARRANTY LABOR RATES POLICY

CURRENT WARRANTY LABOR RATE SHEET — E18/1-1.2 IS ATTACHED TO THIS SECTION. IT HAS BEEN UPDATED TO INCLUDE RATES FOR THE C128D.

ALL LABOR CLAIMS MUST BE ACCOMPANIED BY A STANTARD NARDA FORM (SEE 1-3.1) AND MUST BE LISTED ON THE BATCH CONTROL FORM.

#### 1-1.2 ATTACHMENT: 18/1-1.2 CURRENT WARRANTY RATES

ATTACHED TO THIS SECTION

#### 1-2.1 CHANGE OF ADDRESS—

PLEASE NOTIFY ALICE FEENEY IN WRITING CARE OF SERVICE DEPARTMENT IF YOU HAVE A CHANGE OF ADDRESS.

#### 1-3.1 NEW ADDRESS FOR NARDA FORMS—

YOU MAY OBTAIN BLANK NARDA FORMS FROM THE FOLLOWING LOCATION:

NARDA  
10 EAST 22 STREET SUITE 310  
LOMBARD, IL 60148  
(312) 953-8950

#### 1-4.1 VIC 20 PCB ASSY RETURN POLICY

NO CREDIT WILL BE ISSUED FOR RETURN OF VIC 20 PCB ASSEMBLIES. BOARDS SENT IN FOR CREDIT WILL BE RETURNED TO YOUR SERVICE CENTER.

CONSULT YOUR PARTS LIST FOR COST OF REPLACEMENT PCB ASSEMBLY. REFER TO DEALER BILLING COST.

#### 1-5.1 TECH HOT LINE USAGE—

THE 800 TECH HOT LINE IS FOR AUTHORIZED TECHNICIANS ONLY. PLEASE DO NOT RELEASE THIS NUMBER TO END USERS.

**18/1-1.2 CURRENT WARRANTY LABOR RATE**

CPU	C64/C128	C128D	PC10	A500	A1000	A2000
PCB REPLACEMENT	\$15.00	\$20.00	\$30.00	\$20.00	\$40.00	\$40.00
COMPONENT REPAIR	\$17.00	\$23.00	\$37.50	\$23.00	\$47.50	\$47.50
KEYBOARD	\$15.00	\$ 6.50	\$ 6.50	\$10.00	\$ 6.50	\$ 6.50
P/S EXCHANGE	\$ 6.50	\$15.00	\$25.00	\$ 6.50	\$40.00	\$25.00
NO DEFECT/MINOR	\$ 5.00	\$10.00	\$12.50	\$10.00	\$12.50	\$12.50
FAN REPLACEMENT			\$22.50			
CARD REPLACEMENT			\$25.00			
RAM EXPANDER			\$20.00			

**DISK DRIVE — INTERNAL**

DRIVE ASSY - REPLMT	\$15.00	\$27.50	\$20.00	\$37.50	\$25.00
DRIVE ALIGNMENT	\$20.00	\$37.50	\$28.00	\$47.50	\$35.00

**DISK DRIVE — EXTERNAL 1541/1571/1581**

		1010/1020	1010/1020	1010/1020
PCB REPLACEMENT	\$19.00	\$20.00	\$20.00	\$20.00
COMPONENT REPAIR	\$22.50	\$22.50	\$22.50	\$22.50
DRIVE ASSY REPLMT	\$19.00	\$20.00	\$20.00	\$20.00
DRIVE ALIGNMENT	\$20.00	\$47.50	\$47.50	\$47.50
NO DEFECT/MINOR	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00

**RAM EXPANDERS — EXTERNAL (ALL TYPES)**

REPLACEMENT	\$ 6.50
COMPONENT REPAIR	\$10.00

**MONITORS (ALL TYPES)**

ALL REPAIRS	\$23.50
NO DEFECT/MINOR	\$10.50

**PRINTERS (ALL TYPES)**

ALL REPAIRS	\$23.50
NO DEFECT/MINOR	\$10.50

**\*\*CLAIMS FOR REPAIRS ON PRODUCTS NOT LISTED WILL BE REJECTED UNLESS PRIOR APPROVAL BY THE SERVICE DEPARTMENT HAS BEEN GRANTED.**

**\*\*ALL RATES ARE FOR REPAIRS TO BE GUARANTEED BY THE REPAIR CENTER FOR 30 DAYS FROM THE DATE OF REPAIR.**

**\*\*IF MORE THAN ONE SERVICE IS PERFORMED ON THE SAME UNIT, ONLY THE HIGHER RATE WILL BE PAID.**

## 2

## PARTS

## PARTS UPDATE SECTION

- 
- 2-1.1 PARTS ERRATUS AND ADDITIONS REPRINT FROM ISSUE 17
  - 2-2.1 A2000 PARTS ADDITIONS
  - 2-3.1 A2088, A2052, A2090 PARTS ADDITIONS
  - 2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS
  - 2-4.2 ENCLOSURE: 18/2-4.2 1802 MONITOR SERVICE MANUAL PARTS LIST
  - 2-5.1 1802C DAEWOO MONITOR PARTS ADDITIONS
  - 2-5.2 ENCLOSURE: 18/2-5.2 1802C MONITOR SERVICE MANUAL PARTS LIST
  - 2-6.1 PARTS UPDATE — ISSUE 18, NOV 87
- 

**NOTE:** PLEASE MAKE ADDITIONS AND CORRECTIONS TO YOUR  
BLUE PARTS BOOK 6/1/87

**IMPORTANT CHANGE:** PART NUMBERS FOR 8520 COMPLEX INTER-  
FACE ADAPTERS

NEW NUMBER	DESCRIPTION	WHERE USED
318029-02	8520R4 1 MHZ	A1000/A500/2000
318029-03	8520A-1 2 MHZ	1571/1581

**NOTE:** —03 CAN BE USED TO REPLACE —02  
—02 CAN NOT BE SUBBED FOR —03.  
318029-01 IS NO LONGER IN USE.

**CODES USED:** CRRU = CREDIT FOR RETURNED REPAIRABLE UNIT  
DB = DEALER BILLING  
SR = SUGGESTED RETAIL

## 2-1.1 PARTS ERRATUS AND ADDITIONS FROM ISSUE 17

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
1540038-01	PCB ASSY 2031HP	2031HP	40.00	95.00	
250469-01	PCB ASSY C64C E	C64E	40.00	80.00	
251155-01	MODULATOR RF	VIC		10.50	17.55
251643-01	DRIVE ASSY NEWTRONICS	1541		40.00	80.00
251643-03	NEWT DRV ASSY WHI/IIM	1541C		40.00	80.00
251975-01	SHIELD TOP C64E	C64E		2.20	3.50
252146-01	SUB: 318029-02				
312510-01	PCB ASSY A500 NTSC	A500	225.00	350.00	
312554-01	DRIVE ASSY	A500		95.00	158.30
312558-02	ROM IC 23256 32K X 8	1581		5.20	8.50
312594-01	SUB: 312554-01				
314065-01	KIT AMIGA SERVICE A1000	DIAG	100.00	375.00	CR-PCB
314976-01	USE: 380042-01				
318029-02	IC 8520R4 1MHZ CIA	A500/A2000		8.50	14.15
318029-03	IC 8520A-1 2MHZ CIA	1571/1581		12.50	20.80
318045-01	SUB: 312558-02				
321453-01	SUB: 251155-01				
325519-01	SUB: 251643-01				
325519-02	SUB: 251643-01				
325530-01	RIBBON	8023/1361	NLA		
326189-01	CABLE RF (3M)	MU-C		3.00	5.00
326189-02	SUB: 326189-01				
327137-01	PCB ASSY - MAIN W/OS RAM	A1000		100.00	200.00
380042-01	KIT PC10 IHD MOUNTING	PC10		10.00	16.65
390205-01	POWER SUPPLY	1764EXP		42.50	70.80
390242-03	CONN 23P MALE D - SUB	A500		5.00	8.35
601161-74	IC EPROM 27256	MPS1000		10.00	16.65
601201-22	PCB ASSY - MAIN LOGIC	MPS803	NLA		
602060-22	MAGNETS - PC	1701		3.50	5.85
602060-39	RESISTOR - VAR	1701		1.00	1.70
602060-71	PCB ASSY - CRT	1701		25.50	41.65
602060-73	PCB ASSY - POWER	1701		31.50	52.50

## 2-2.1 A2000 PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
251118-01	PCB GUIDE	A2000		3.50	5.85
252344-01	OSC 28.37516 MHZ	A2000		5.00	8.35
312716-02	KEYBOARD ASSY - HITEK	A2000		75.00	125.00
312720-03	PCB ASSY - A2000 NTSC	A2000	225.00	400.00	
318075-02	IC BUSTER U800	A2000		7.50	12.50
324271-06	STANDOFF L = 7MM	A2000		1.00	1.65
325566-12	OSC 28.63636 MHZ X1	A2000		5.00	8.35
327124-03	MOUSE ASSY	A2000		45.00	75.00
380012-07	CABLE ASSY - 5.25 DRIVE	A2000		12.00	20.00
380111-07	DRIVE ASSY - 5.25 CHINON	A2000		135.00	225.00
380128-01	FOOT, CORK	A2000		1.00	1.65
380708-02	POWER SUPPLY ASSY	A2000		90.00	149.95
380709-01	LED HOLDING ASSY	A2000		2.50	4.15
380726-01	BEZEL, FRONT	A2000		30.00	50.00
380727-01	HOUSING, TOP	A2000		15.00	23.00
380728-01	HOUSING, BOTTOM	A2000		15.00	23.00
380736-01	COVER, 5.25 FLOPPY	A2000		7.50	12.50
380737-01	COVER, 3.5 FLOPPY	A2000		5.50	9.15
380739-01	PANEL, EXP SLOTS	A2000		5.00	8.35
380742-01	CABLE ASSY - 3.5 DRIVE	A2000		12.00	20.00
380752-01	DRIVE ASSY - 3.5 PANA	A2000		90.00	149.95
390089-01	IC 74F245	A2000		3.50	5.85
390257-01	FILTER, EMI	A2000		2.00	3.35
390265-01	POWER SWITCH	A2000		7.50	12.50
902671-01	TRANS 2SC945 NPN JAP	A2000		1.00	1.65

## 2-3.1 A2088, A2052, A2090 PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
380755-01	PCB ASSY - 2088 PCXT EMUL	A2088	125.00	325.00	
380658-01	IC ADDR BUS TRANSL	A2088		45.00	75.00
380659-01	IC DATA BUS TRANSL 5718	A2088		45.00	75.00
380783-01	IC PAL RAM DECODER	A2088		8.50	14.15
380784-01	IC PAL I/O DECODER	A2088		8.50	14.15
380785-01	IC PAL CONFIG	A2088		8.50	14.15
380786-01	IC FE 2010	A2088		45.00	75.00
380787-01	IC FDC 9268	A2088		12.50	20.85
380788-01	IC BIOS PC-EMUL	A2088		7.00	11.65
324219-01	TRANS - BC-327B	A2088		2.00	3.35
325566-10	OSC 16MHZ HYBRID	A2088		5.00	8.35
312365-01	PCB ASSY - 2052 2MB RAM EXP	A2052	110.00	225.00	
318055-01	IC PAL 16L8A U4	A2052		5.00	8.35
318056-01	IC PAL 16L8A U5	A2052		5.00	8.35
318057-01	IC PAL 16L8A U13	A2052		5.00	8.35
318054-01	IC PAL 16L8A U10	A2052		5.00	8.35
311979-01	PCB ASSY - 2090 HD CNTRL	A2090	75.00	175.00	
390235-01	IC 20L10 PAL U8	A2090		8.50	14.15
390324-02	IC 20L10 PAL U48	A2090		8.50	14.15
390231-01	IC 20 X 8 PAL U1, 2, 3	A2090		8.50	14.15
390233-01	IC 16L8 PAL U17	A2090		5.00	8.35
390236-01	IC 16L8 PAL U7	A2090		5.00	8.35
390232-02	IC 16L8 PAL U38	A2090		5.00	8.35
390237-01	IC 16R6A PAL U16	A2090		5.00	8.35
315046-01	IC 8727 CBM DMA	A2090		10.00	16.65
318040-01	IC 26LS31 DIF TRANS	A2090		2.00	3.35
318043-01	IC 26LS32 DIF RECR	A2090		2.00	3.35
390207-01	IC DP8465N-4 DATA SEP	A2090		60.00	100.00
390230-02	IC EPROM 2764 300NS	A2090		7.00	11.65
390210-01	IC DJC KONON HDC	A2090		42.00	66.65
324667-02	IC DDU-6-60 DELAY LINE	A2090		9.00	15.00
390206-01	IC WD33C93 SCSI	A2090		40.00	64.00
900556-09	CRYSTAL 20MHZ PAR MODE	A2090		3.50	5.85



## 2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
602090-62	TRANS 2SD1453	1802		5.00	8.35
602090-64	DIODE GP10-IN4005	1802		1.00	1.65
602090-66	DIODE RD11EB2	1802		1.00	1.65
602090-67	DIODE S1B01-01S	1802		1.00	1.65
602090-68	DIODE RGP10G	1802		1.00	1.65
602090-69	DIODE EU-2V	1802		1.00	1.65
602090-72	DIODE RM2C	1802		1.00	1.65
602090-74	IC HA 1142	1802		5.50	9.15
602090-75	IC HA11431 VIDEO CHROMA	1802		7.50	12.50
602090-76	ICMC14053B	1802		3.50	5.85
602090-77	UC STR470A	1802		15.00	25.00
602090-78	IC AN5515 VERT OUT	1802		5.50	9.15
602090-79	IC AN 5265 SOUND	1802		5.50	9.15
602090-84	CRT 370FCB22-TC06 UL/CSA	1802		85.00	141.60
602090-92	COIL DEGUASSING (AL)	1802		4.50	7.50
602090-93	COIL LINEARITY	1802		3.00	5.00
602090-96	COIL CHOKE 1.04UH	1802		1.00	1.65
602090-97	COIL CHOKE 10.3UH	1802		1.00	1.65
602090-98	COIL WIDTH	1802		3.00	5.00
602091-01	TRANS HORZ DRIVE	1802		3.00	5.00
602091-02	TRANS SIDE PCC-2	1802		5.00	8.35
602091-03	TRANS PULSE FOR STR470	1802		10.00	16.65
602091-04	TRANS CONVERTOR	1802		28.50	47.50
602091-05	TRANS FLYBACK KP5872G	1802		45.00	75.00
602091-07	THERMISTOR	1802		3.00	5.00
602091-08	VARISTOR	1802		1.00	1.65

**2-4.1 1802 GOLDSTAR MONITOR PARTS ADDITIONS** *(continued)*

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
602091-14	RESISTOR SEMIFIX 1KB	1802		1.00	1.65
602091-15	RESISTOR SEMIFIX 2.2KB	1802		1.00	1.65
602091-16	RESISTOR SEMIFIX 4.7KB	1802		1.00	1.65
602091-17	RESISTOR SEMIFIX 47KB	1802		1.00	1.65
602091-18	RESISTOR SEMIFIX 330B	1802		1.00	1.65
602091-19	RESISTOR COMP GS225K/UI	1802		1.00	1.65
602091-24	RESISTOR RWR STD 10W 3.3OHM	1802		1.00	1.65
602091-25	RESISTOR M.OXIDE 7W 3.6K	1802		3.00	5.00
602091-26	RESISTOR M.OXIDE 7W 10K	1802		3.00	5.00
602091-30	RESISTOR FUSING 0.5W 4.7J	1802		1.00	1.65
602091-34	CAP PE 100V 0.15MFM	1802		1.00	1.65
602091-37	CAP PP 200V 0.082MFJ	1802		1.00	1.65
602091-38	CAP PP 200V 0.02MFJ	1802		1.00	1.65
602091-40	CAP PP 200V 0.39MPK	1802		15.00	25.00
602091-41	CAP PP 630V 0.012MFJ	1802		20.00	33.35
602091-42	CAP PP 600V 0.0027MFK	1802		1.00	1.65
602091-43	CAP PP 1600V 1500PJ	1802		1.00	1.65
602091-44	CAP MPP 125VAC 0.1MFM	1802		3.00	5.00
602091-45	CAP DE7100FZ472M 125VAC	1802		1.00	1.65
602091-46	CAP CE HR160V 33MF	1802		2.00	3.35
602091-47	CAP CHEMI 200WV 4701F	1802		5.50	9.15
602091-49	CAP MPP 1.6KV 0.0082MFJ	1802		3.00	5.00
602091-50	CAP CE 160V 220UF	1802		5.00	8.35

**2-4.2 ENCLOSURE - 1802 GOLDSTAR MONITOR SERVICE  
MANUAL PARTS LIST**

## 2-5.1 1802C DAEWOO MONITOR PARTS ADDITIONS

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
602151-05	TR 2SD1397	1802C		9.00	15.00
602151-79	IC UPC1378H	1802C		7.50	12.50
602151-80	IC KTA7208	1802C		7.50	12.50
602151-81	IC UPD4066BC	1802C		7.50	12.50
602151-82	IC STR5404	1802C		8.50	14.15
602152-25	RES VAR ROTARY	1802C		1.00	1.65
602152-48	RES VAR ROTARY	1802C		1.00	1.65
602152-78	RESISTOR FUSIBLE	1802C		1.00	1.65
602152-88	RES CARBON 1/2W 10 OHM	1802C		1.00	1.65
602152-89	RES FUSIBLE 1 OHM	1802C		1.00	1.65
602152-92	RES FUSIBLE 1 OHM	1802C		1.00	1.65
602152-93	RES CARBON 1/6W 10K OHM	1802C		1.00	1.65
602152-94	RES CARBON 1/6W 120K OHM	1802C		1.00	1.65
602152-95	RES CARBON 1/6W 15K OHM	1802C		1.00	1.65
602153-02	RES VARIABLE	1802C		1.00	1.65
602153-68	RES FUSIBLE 1 OHM	1802C		1.00	1.65
602153-73	SPEAKER 16 OHM .5W	1802C		8.50	14.15
602153-74	SWITCH, SLIDE KSA 2317	1802C		3.50	5.85
602153-75	TRANS PIN CUSHION	1802C		28.00	46.65
602153-76	TRANS HORIZ DRIVE	1802C		7.50	12.45
602153-77	TRANS FBT	1802C		45.00	75.00
602153-79	TRANS SWITCHING	1802C		32.00	53.30
602154-21	SOCKET CRT	1802C		7.50	12.45
602154-34	DOOR VR	1802C		7.00	11.65
602154-40	COIL DEGUASSING	1802C		15.00	25.00
602154-44	KNOB POWER	1802C		2.50	4.15
602154-46	POWER INDICATOR	1802C		3.00	5.00
602154-50	SWITCH, PUSH	1802C		5.00	8.35
602155-23	CAP MYLAR 4700 PF 1.6KVJ	1802C		1.00	1.65
602155-34	COIL DELAY LINE 0.4MSEC	1802C		4.50	7.50
602155-38	DIODE ZENER ZPD-22	1802C		1.00	1.65
602155-39	DIODE RH-1	1802C		1.00	1.65
602155-40	FUSE UL/CSA MF514AR5V	1802C		.60	1.00
602155-41	IC TA7670	1802C		7.50	12.50
602155-43	POSISTOR	1802C		4.50	7.50
602155-49	RES VAR ROTARY	1802C		1.00	1.65
602155-53	CORD, POWER	1802C		4.50	7.50
602155-58	CRT 370DJB22-TC17 (Y)	1802C		135.00	224.90
602155-66	KNOB SLIDE	1802C		3.50	5.85
602155-73	COVER, BACK ASSY	1802C		35.00	58.30
602155-74	COVER, BACK	1802C		25.00	41.65

2-5.2 ENCLOSURE — 1802C DAEWOO MONITOR SERVICE  
MANUAL PARTS LIST

## 2-6.1 PARTS UPDATE — ISSUE 18

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
252127-02	IC PAULA 8364 R7	A2000/A500		42.00	70.00
252126-02	IC DENISE 8362 R8	A2000/A500		39.25	65.40
314068-01	IC REPAIR KIT — AMIGA CONTAINS: 318070-01 FAT AGNUS 8370 R3 252127-02 PAUL 8364 R7 252126-02 DENISE 8362 R8 318072-01 GARY 5719 318029-02 8520 R4 1 MHZ 318075-02 BUSTER			125.00	
315089-01	IC 8726 RAM EXP CNTRL	1764/1750		35.00	58.35
315089-02	IC 8726 RAM EXP CNTRL QUAD	1764/1750		35.00	58.35
251913-01	ROM BASIC/KERNAL 128K	C64E		18.00	30.00
251715-01	IC MEMORY CNTRL	C64E		25.00	41.65
318014-01	IC 8562 VIC	C64E		18.00	30.00
314965-02	AMIGA ALIGNMENT KIT V 2.0 CONTAINS: 314966-01 A1000 ALIGN PROGRAM DISK V 1.0 314966-02 A500/A2000 ALIGN PROGRAM DISK V 1.1 314967-02 AMIGA A1000/A500/A2000 INSTRUCTIONS 314968-01 AMIGA ALIGN DIGILOG DISK			100.00	

**4****CBM****CBM SECTION**

- 
- 4-1.1 1581 FDD REPAIR TIP**
  - 4-2.1 ERRATUS: C128D BOARD LAYOUT**
  - 4-2.2 ENCLOSURE: 18/4-2.2 C128D BOARD LAYOUT FOR PCB ASSY# 250477**
  - 4-3.1 C64C ADDENDUM: B-3, E VERSIONS**
  - 4-3.2 ENCLOSURE: 18/4-3.2 C64C ADDENDUM PN# 314856-01**
  - 4-4.1 C128/C128D DIAGNOSTIC EPROM**
  - 4-4.2 ENCLOSURE: 18/4-4.2 C128/C128D DIAGNOSTIC EPROM**
- 

**4-1.1 REPAIR TIP: 1581 FLOPPY DISK DRIVE**

INTERMITTENT DATA CORRUPTION PROBLEMS ON THE 1581 CAN BE ELIMINATED BY REPLACING THE WD1770 FLOPPY DISK CONTROLLER PN #310651-01 IN U4 WITH A WESTERN DIGITAL 1772 PN# 310651-02. THE J1 JUMPER MUST BE INSTALLED.

**PLEASE NOTE:** REFER TO PAGE 17 OF 1581 SERVICE MANUAL PN #314982-01. NOTE ON BOTTOM LEFT HAND CORNER SHOULD BE CHANGED TO READ: 1) J1 IS ALWAYS INSTALLED.

STANDARD WARRANTY RATES ARE IN EFFECT FOR THE NORMAL 90 DAY PERIOD BASED ON CUSTOMERS' PROOF OF PURCHASE.

**4-2.1 ERRATUS: C128D BOARD LAYOUT**

THE BOARD LAYOUT DIAGRAM INCLUDED IN THE C128D ADDENDUM IS INCORRECT. PLEASE REPLACE THAT PAGE WITH THE CORRECT DIAGRAM OF PCB ASSY# 250477, ENCLOSED IN THIS TECHTOPICS.

**4-2.2 ENCLOSURE: 18/4-2.2 C128D BOARD LAYOUT**

ENCLOSED WITH CBM SECTION OF THIS TECHTOPICS.

**4-3.1 C64C ADDENDUM PART NUMBER 314856-01**

ENCLOSED WITH THIS TECHTOPICS PLEASE FIND THE C64C ADDENDUM TO BE INSERTED INTO YOUR C64 SERVICE MANUAL. THIS ADDENDUM CONTAINS THE FOLLOWING SECTIONS FOR BOTH THE C64C PCB AND THE C64C E TYPE PCB.

- 1) MAJOR COMPONENT SERVICE DIAGRAMS
- 2) COMPONENT PARTS LIST
- 3) BOARD LAYOUT DIAGRAMS
- 4) SCHEMATIC DIAGRAMS

INCLUDED ALSO ARE REPRINTED PAGES 4 AND 17, A NEW TITLE PAGE AND SECOND TABLE OF CONTENTS PAGE TO UPDATE YOUR SERVICE MANUAL.

**4-3.2 ENCLOSURE: 18/4-3.2 C64C ADDENDUM PN# 314856-01**

ENCLOSED WITH CBM SECTION OF THIS TECHTOPICS.

**4-4.1 C128/C128D DIAGNOSTIC EPROM**

ENCLOSED WITH THIS TECHTOPICS PLEASE FIND THE NEW C128/C128D DIAGNOSTIC EPROM TO BE INSERTED INTO YOUR DIAGNOSTIC CARTRIDGE. THE EPROM IS IDENTIFIED BY THE VERSION NUMBER 785260.

NEW CHECK SUMS FOR THE C128D ROMS ARE AS FOLLOWS:

KERNAL ROM	F3
BASIC HI	F4
BASIC LO	10
CHAR ROM	FB

**PLEASE NOTE:** WITH THIS EPROM INSTALLED THE TEST WILL DISPLAY C128 IC LOCATIONS ON SCREEN UNLESS THE SERIAL CONNECTOR IS ATTACHED. IF THE SERIAL BUS BACK CONNECTOR IS INSTALLED THE TEST WILL DISPLAY C128D IC LOCATIONS ON THE SCREEN.

IT WILL BE NECESSARY TO MODIFY THE CASSETTE PORT CONNECTOR IN ORDER TO ATTACH IT TO THE C128D CHASSIS. THIS MAY BE ACCOMPLISHED BY REMOVING THE PLASTIC EDGES WHICH CONTAIN HOLES FOR THE MOUNTING HARDWARE ON BOTH SIDES OF THE CONNECTOR.

PLEASE RETURN YOUR OLD EPROM TO THE ATTENTION OF:  
BRUCE MORTENSON, CBM SERVICE DEPARTMENT

**4-4.2 ENCLOSURE: 18/4-4.2 C128/C128D DIAG EPROM VERSION #785260**

ENCLOSED WITH CBM SECTION OF THIS TECHTOPICS

# 6

## C-TOC

### NETWORK SECTION

#### 6-1.1 COMMODORE SERVICE INFORMATION NETWORK PREVIEW

THE SERVICE DEPARTMENT HAS INSTALLED A MICRO-VAX COMPUTER WITH FOUR 1200 BAUD TOLL FREE DATA LINES.

AUTHORIZED SERVICE CENTERS WILL BE ABLE TO ACCESS THIS NETWORK STARTING IN JANUARY 87.

THE BULLETIN BOARD "CSIN", WILL BE ORGANIZED INTO THE SAME SECTIONS AS THE CURRENT TECHTOPICS. I.E.;

##### 1 — INFORMATION SECTION

CONTAINS IMPORTANT ADMINISTRATIVE MESSAGES AND POLICY CHANGES.

##### 2 — PARTS UPDATE SECTION

ADDITIONS AND CHANGES IN THE CURRENT PARTS LIST.

##### 3 — AMIGA SECTION

IMPORTANT FIXES, NEW DOCUMENTATION, DIAGNOSTIC TESTS FOR AMIGA LINE.

##### 4 — CBM SECTION

CONSUMER LINE PRODUCTS, FIXES, NEW DIAGNOSTICS AND DOCUMENTATION.

##### 5 — PC SECTION

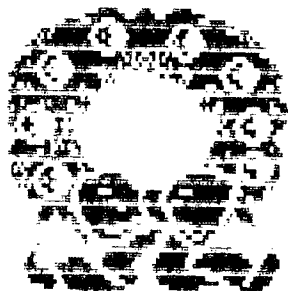
PC LINE, IBM COMPATIBLES, FIXES, NEW DIAGNOSTICS AND DOCUMENTATION.

##### 6 — CSIN SECTION

SYSTEM OPERATIONS AND INSTRUCTIONS FOR AUTHORIZED SERVICE CENTERS.

FUTURE FEATURES WILL INCLUDE DIRECT MESSAGING TO TECHNICAL PERSONNEL AND DIRECT PARTS ORDER ENTRY.

# SEASONS GREETINGS



FROM

OUR MEMBERS



WISH YOU A  
MERRY CHRISTMAS

Bruce  
Kantor

Scott Donaldson

Tom Zaborowski

Leymour

Halmy Beach

A. H. Mecca

Brenda  
Billings

Brenda  
Buce

Tom G. Mc

Alice Heaney

TECHTOPICS ISSUE 19 DEC 1987





Computer Systems Division  
1200 Wilson Drive  
West Chester, PA 19380  
(215) 431-9100

December 23, 1987

To: All Commodore Service Centers,

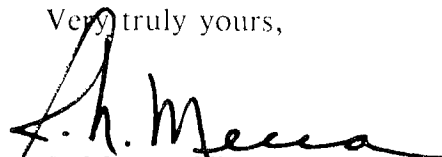
All of us in Service at Commodore want to thank you for continuing to provide high quality, timely service to our customers. Please be assured that we recognize your importance to Commodore product sales and how it has helped contribute to our turn-around.

Sales and profits continue to increase. Our most recent new product introductions, the Amiga 500 and Amiga 2000, are going great. The sales of the PC-10 product line have also gone beyond expectations.

Those of you not currently signed to service the new Amiga and PC lines may want to reconsider becoming a full line servicer. Your listing would then be enclosed with all our computer product shipments. For your convenience we have included a blank order form for the additional start-up kits (upon receipt of your order we will change our records and bill your account).

We wish to thank you for your participation in this program and wish you and your organization much success in 1988.

Very truly yours,

  
J. Mecca, Vice President

  
A. S. Zaborowski, Director

# 1

## INFO

### SERVICE INFORMATION SECTION

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- 1-0.0 INFO SECTION INDEX — TECHTOPICS ISSUE 19, DECEMBER 1987.
  - 1-1.1 ATTACHMENT: LETTER FROM VICE PRESIDENT OF SERVICE.
  - 1-2.1 ATTACHMENT: SERVICE TELEPHONE DIRECTORY FOR 1988.
  - 1-3.1 ATTACHMENT: QUICK REFERENCE SHEET.
  - 1-4.1 NOTICE OF ANNUAL SUBSCRIPTION AUTOMATIC BILLING.
  - 1-4.2 ATTACHMENT: RETURN MAIL FORM.
- 

- 1-1.1 ATTACHMENT: LETTER FROM VICE PRESIDENT OF SERVICE.

THANKS FROM JOE MECCA AND TONY ZABOROWSKI FOR YOUR PARTICIPATION IN THE COMMODORE AUTHORIZED SERVICE CENTER PROGRAM.

BEST WISHES FOR A HAPPY AND SUCCESSFUL NEW YEAR FROM ALL OF THE SERVICE DEPARTMENT STAFF.

- 1-2.1 ATTACHMENT: SERVICE TELEPHONE DIRECTORY FOR 1988.

REVISED LIST OF IMPORTANT SERVICE TELEPHONE NUMBERS. PLEASE DO NOT RELEASE THESE NUMBERS TO END USERS.

- 1-3.1 ATTACHMENT: QUICK REFERENCE SHEET.

LIST OF MAILING ADDRESSES FOR SERVICE RELATED COMMUNICATIONS.

- 1-4.1 NOTICE OF ANNUAL SUBSCRIPTION AUTOMATIC BILLING.

ALL SERVICE CENTER ACCOUNTS WILL AUTOMATICALLY BE BILLED FOR THE 1988 TECHNICAL PUBLICATIONS SUBSCRIPTION. IF YOU DO NOT WISH TO SUBSCRIBE, PLEASE COMPLETE THE ATTACHED FORM AND RETURN IT TO: ALICE FEENEY, ATTN: SERVICE DEPARTMENT. SEE ATTACHMENT FOR NEW SUBSCRIPTION RATES.

**1-4.2 ATTACHMENT: RETURN MAIL FORM**

NEW SUBSCRIPTION PRICING IS AS FOLLOWS:

C64/128 — \$29.95

AMIGA — \$89.95

PC — \$69.95

ALL THREE — \$129.95

SAVE \$60.00

PLEASE NOTE: THE COST OF THE SUBSCRIPTION RATE FOR THE CBM AND PC LINES HAVE BEEN REDUCED. TECHTOPIC MAILINGS NOW INCLUDE ONLY THOSE SECTIONS TO WHICH YOU HAVE SUBSCRIBED. A CODE NUMBER ON YOUR MAILING LABEL INDICATES WHICH TYPE OF SERVICE OUR RECORDS LIST YOU AS. THE CODES ARE AS FOLLOWS:

A1 - AMIGA ONLY

A2 - AMIGA-PC

A3 - AMIGA-CBM

A4 - AMIGA-CBM-PC

C1 - CBM ONLY

C2 - CBM-PC

IF YOU ARE NOT LISTED CORRECTLY, PLEASE RETURN THE FORM BELOW WITH THE CORRECT INFORMATION. YOUR SERVICE CENTER LISTING, WHICH IS PACKAGED WITH EVERY PRODUCT WILL, IN THE FUTURE, INDICATE WHICH LINES YOU SERVICE.

**IMPORTANT**

SUBSCRIPTIONS ARE MANDATORY! FAILURE TO PARTICIPATE WILL RESULT IN CANCELLATION OF YOUR SERVICE CONTRACT.

DETACH AND RETURN TO: ALICE FEENEY, SERVICE DEPT.

SERVICE CENTER NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE/ZIP \_\_\_\_\_

SERVICE CENTER ACCOUNT NUMBER \_\_\_\_\_ DATE \_\_\_\_\_

\_\_\_\_ DO NOT BILL OUR ACCOUNT. WE REALIZE THIS WILL CANCEL OUR AUTHORIZATION TO SERVICE COMMODORE PRODUCTS.

\_\_\_\_ PLEASE CHANGE OUR SERVICE CODE TO \_\_\_\_\_

AUTHORIZED SIGNATURE \_\_\_\_\_

## 2

## PARTS

## PARTS UPDATE SECTION

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- 2-0.0 PARTS SECTION INDEX — TECHTOPICS ISSUE 19, DECEMBER 1987.  
 2-1.1 PARTS UPDATE — ISSUE 19, DECEMBER 1987.  
 2-2.1 IMPROVED PARTS DELIVERIES TO WEST COAST.  
 2-3.1 PARTS DEPARTMENT — CLOSED JANUARY 3, 4 and 5.
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2-1.1 PARTS UPDATE — ISSUE 19, DECEMBER 1987.

PART NUMBER	DESCRIPTION	UNIT	CRRU	DB	SR
250403-02	PCB ASSY CR	VIC	NLA		
317608-01	AMIGA DOS 1.2	AMIGA		10.00	
319943-01	2090 HD MANUAL	AMIGA		4.00	
380699-01	2088 XT EMUL. MANUAL	AMIGA		10.00	
380796-01	A2000 USER MANUAL	AMIGA		15.00	
602072-77	TRANS 2SD1455	1902/1080		25.00	
602090-62	TRANS 2SD1453	1802		5.00	
602090-77	IC STR470A	1802		15.00	
602153-76	TRANS H DRIVE	1902A		7.50	
604060-05	ALPS ZERO TRK ASSY	1571		5.25	8.75
604060-07	ALPS SWC HOLDR ASSY	1571		5.25	8.75
901453-07	IC 2114 RAM	MU		9.00	

2-2.1 IMPROVED PARTS DELIVERIES TO WEST COAST.

STARTING IN JANUARY 1988, COMMODORE WILL BEGIN BULK SHIPMENTS TO THE WEST COAST. THIS NEW ARRANGEMENT WILL REDUCE TURN-AROUND ON PARTS ORDERS FROM SERVICE CENTERS LOCATED IN UTAH, WASHINGTON, MONTANA, IDAHO, CALIFORNIA, NEVADA AND ARIZONA.

2-3.1 PARTS DEPARTMENT — CLOSED JANUARY 3, 4 AND 5.

PARTS WILL BE CLOSED JANUARY 3, 4 AND 5 FOR INVENTORY. NO ORDERS WILL BE ACCEPTED.

# 4

## CBM

### CBM SECTION

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**4-0.0 CBM SECTION INDEX — TECHTOPICS ISSUE 19, DECEMBER 1987.**

**4-1.1 1802/CM141 GOLDSTAR MONITOR TROUBLESHOOTING.**

**4-2.1 1802C DAEWOO MONITOR TROUBLESHOOTING.**

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**4-1.1 1802/CM141 GOLDSTAR MONITOR TROUBLESHOOTING.**

NOTE: 1802 AND CM141 BOTH MANUFACTURED BY GOLDSTAR ARE DIFFERENT CHASSIS ASSEMBLIES. PLEASE DETERMINE CORRECT MODEL BEFORE CALLING HOT LINE.

SYMPTOM: NO RASTER — MAKING BUZZING SOUND.

THE SWITCHING POWER SUPPLY INTERNAL TO THE CM141/1802 IS KNOWN AS A RINGING CHOKE CONVERTER. THE RCC WILL SYNCHRONIZE WITH THE HORIZONTAL OSCILLATOR (15,735). IF THE RCC DOES NOT RECEIVE A SYNC SIGNAL, IT WILL DRIFT IN FREQUENCY CREATING A BUZZING SOUND (SIGNING).

NOTE: A NO RASTER SYMPTOM CAN BE CAUSED BY HIGH VOLTAGE SHUTDOWN OR NO HIGH VOLTAGE.

HIGH VOLTAGE SHUTDOWN — SHORTED HORIZONTAL OUTPUT TRANSISTOR OR SHORTED HIGH VOLTAGE MODULE.

NO HIGH VOLTAGE — OPEN HORIZONTAL OUTPUT TRANSISTOR, OPEN HORIZONTAL PROCESSOR CHIP.

**4-2.1 1802C DAEWOO MONITOR TROUBLESHOOTING.**

SYMPTOM — DEAD UNIT — FUSE BLOWN.

SHORTED PULSEWIDTH MODULATOR (1801 CBM PN #602151-82).